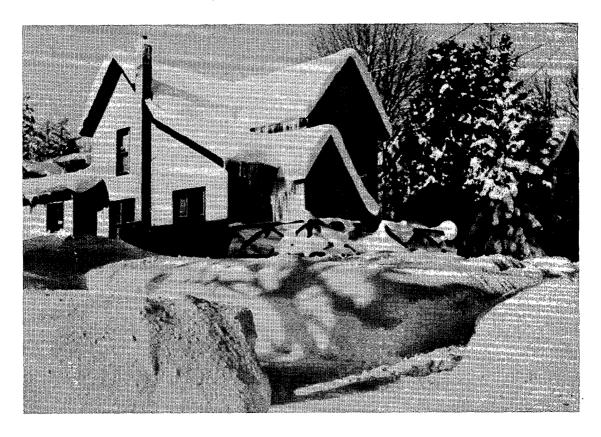
STORM DATA

WITH LATE REPORTS/CORRECTIONS





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Kennel D Wadean

DIRECTOR NATIONAL CLIMATIC DATA CENTER

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CONTENTS

Cover: A Lyons Falls, New York home is locked in winter's icy grip after lake-effect snow from Lake Ontario buried the Tug Hill area of the state on January 4th and 5th (see Item 1, pages 6 through 8).

---Photo by Gorden H. Allen, The Journal & Republican, Lowville, New York.

	Page
Outstanding Storms of the Month	3
Storm Data and Unusual Weather Phenomena	26
Storm Summary	44
Late Reports/Corrections	43
Reference Notes and "F" Scale Definitions	46

STORM DATA (ISSN 0039-1972)

The section on Outstanding Storms of the Month is prepared by Professor T. Theodore Fujita, editor, and Duane J. Stiegler, associate editor, the University of Chicago, with funding by the U. S. Office of Naval Research. The Storm Data and Unusual Weather Phenomena narratives, and summaries of Hurricanes/Tropical Storms are prepared by the National Weather Service. The National Climatic Data Center compiles statistics on deaths, injuries, damage and prepares the annual summaries of tornadoes and Lightning. This publication contains our best information on storms, but due to the difficulties inherent in collection of this type of data it is not all-inclusive. Late reports and corrections will be carried quarterly. Maps of zones used in the Storm Data and Unusual Weather Phenomena will be published in all editions.

Storm Data is published monthly by the National Climatic Data Center.

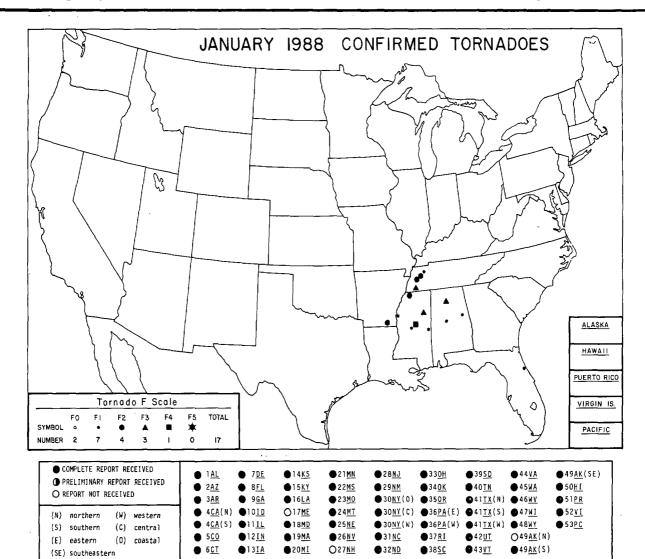
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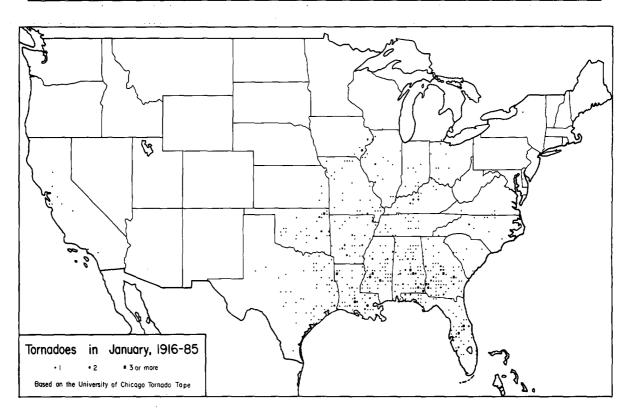
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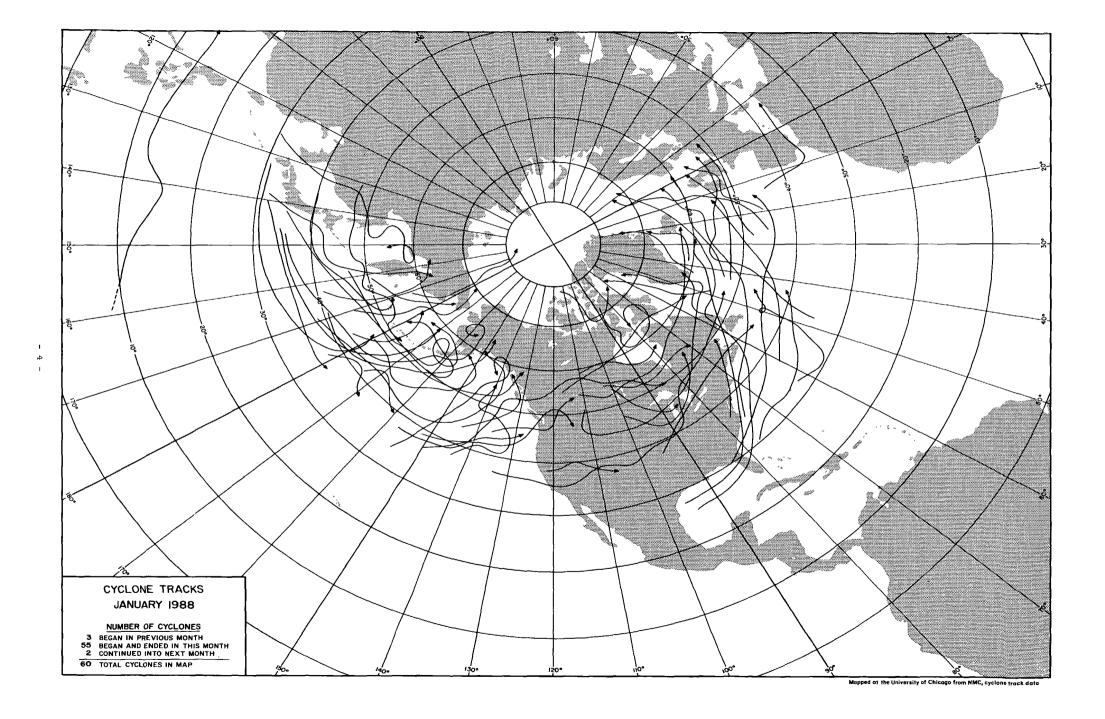
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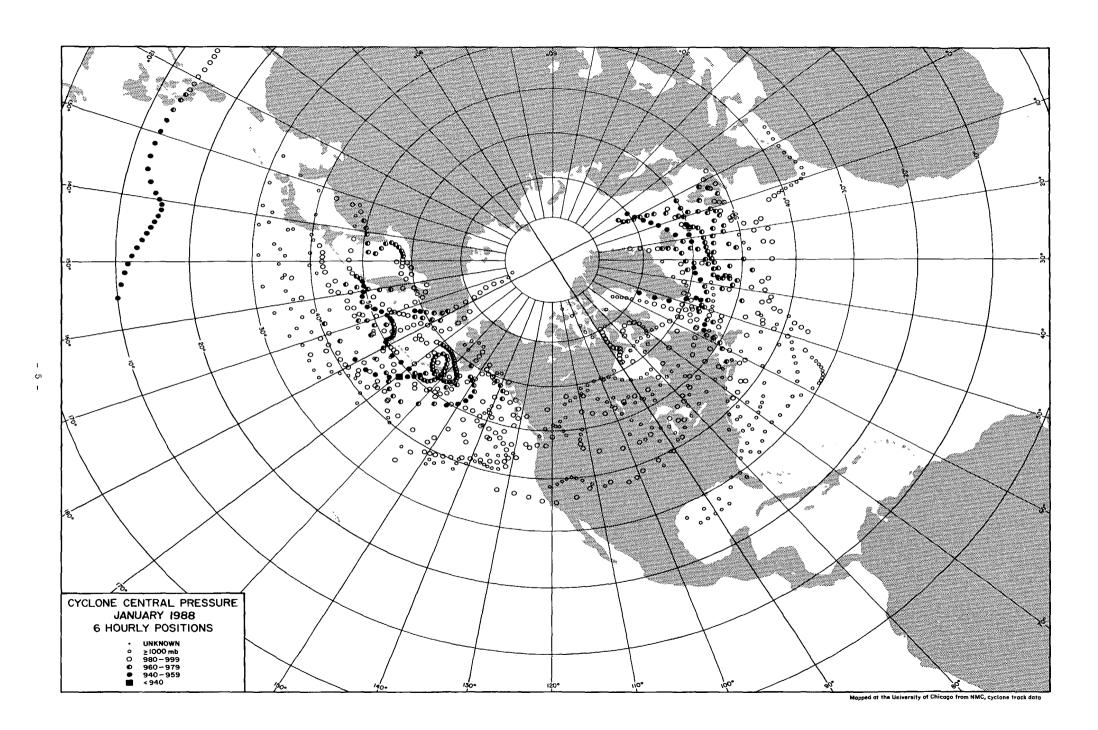
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OUTSTANDING STORMS OF THE MONTH

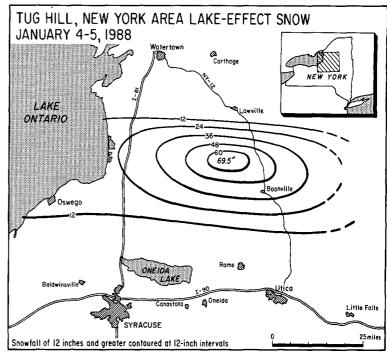




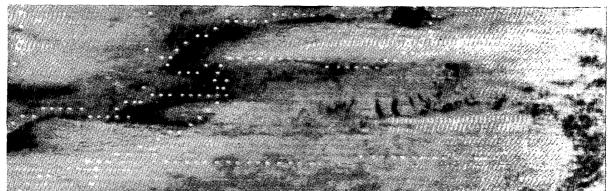




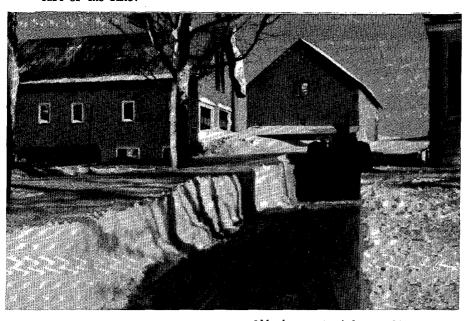
On January 4th and 5th, a lake-effect snow in a very narrow, stationary band extended east from Lake Ontario through the Tug Hill area of New York. The two-day storm deposited a low density snowfall over a localized area which is accustomed to such events, but this snowfall peaked at nearly 70 inches in amount (see map at right). The maximum measured snowfall, 69.5 inches occurred at Highmarket, about 15 miles south of Lowville. Snow amounts were only 6 inches or less 15 miles to the north of Highmarket, and the same was true about 25 miles to the south (Storm totals dropped off a bit slower to the south due to the southward migration of the snowband before it dissipated). According to Gerald Morczk, the cooperative observer at Highmarket, this was one of the biggest snowfalls at his location that he can remember -- a strong statement for a location that averages 225 inches of snowfall annually. Many area roads were closed by the snow, including Interstate 81, and many travelers were stranded for a time.



Analysis of event total snowfall in the Tug Hill area of New York on January 4th and 5th, 1988. --- Map from the NWSFO at Buffalo, New York.



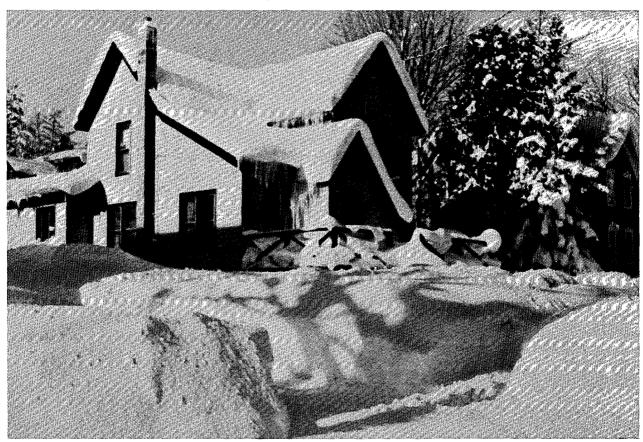
A GOES 6 satellite, visible image taken at 1030EST on January 5th shows the lake-effect clouds associated with the snow over and extending east of Lakes Erie and Ontario. The narrowness of the Lake Ontario band (uppermost in the photo) emphasizes the highly localized nature of the snow event in the Tug Hill area east of the lake.



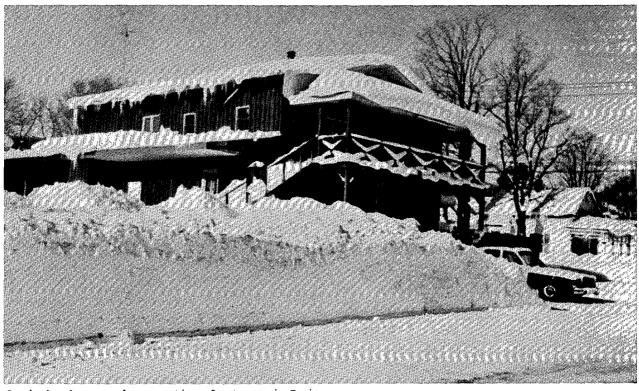
A just-cleared driveway at a Highmarket farm reveals the snow's depth about 3 days after the storm had ended. The depth, far less than the 69.5 inches that fell, gives some indication of the settling that usually occurs with low density snows that are common off of the Great Lakes. This snow had an estimated snow-to-water ratio of nearly 20:1. ---Photo by Gerald Morczk, Highmarket, New York.

---All above materials supplied by Tom Niziol, NWSFO at Buffalo, New York.

During the storm, snowfall rates of 4 inches per hour were reported, as was convective activity. Numerous reports of lightning and thunder were received from just offshore of Oswego during the night of the 4th. Strong winds occurred along the southern edge of the snowband, which is typical in well-developed lake-effect snows. Sustained winds in excess of 40 mph were also reported near Oswego on the night of the 4th. Under the band itself however, very little wind accompanied the snow, as was reported by the observer at Highmarket.

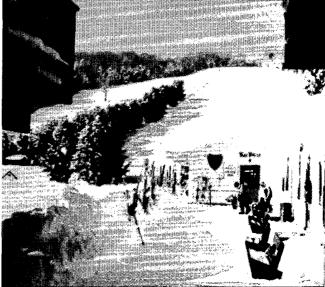


Following the storm, a rather large accumulation of snow adorns the roof and yard of this Lyons Falls home. Note the large icicles hanging from the home's eaves.

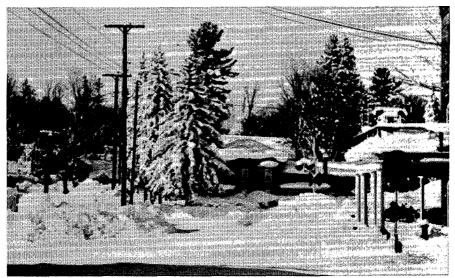


Snowbanks obscure a large portion of a tavern in Turin.

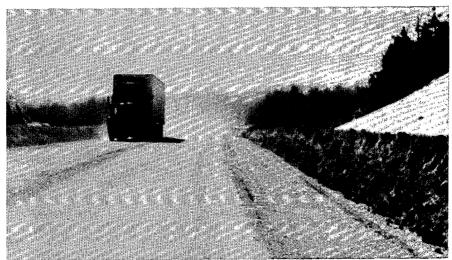




Also in Turin, the home at left is immersed in a wintery wonderland, while the Snow Ridge ski area at right was more than pleased with the fresh powder.



A snow-covered Port Leyden. Port Leyden, Lyons Falls and Turin all lie between 7 and 10 miles north of Boonville, and were along the major axis of the snowfall band.



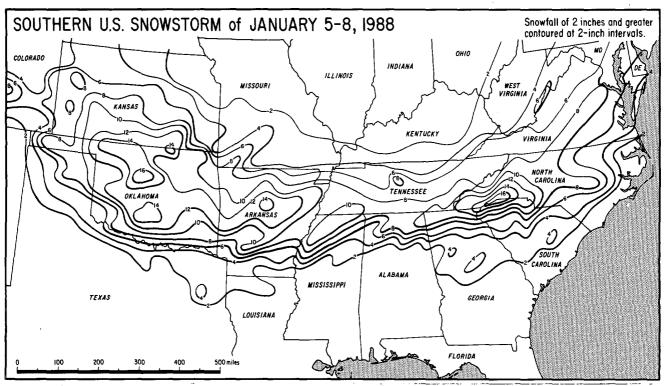
A semi negotiates an icy highway after road clearing was completed.

---All photos on pages 7 and 8 by Gorden H. Allen, The Journal & Republican, Lowville, New York.

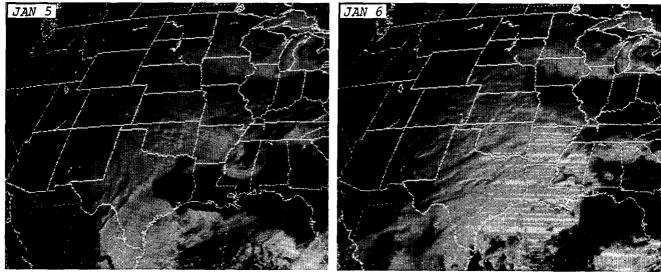
2. SNOWSTORM in the SOUTHERN U.S. on January 5-8, 1988

As an upper-level trough raced eastward across the country on January 6th through 8th, overrunning precipitation conditions formed ahead of it, producing one of the largest snowfall episodes to occur through the Southern U.S. in this century. Heavy snow was deposited in a band centered along a line from the Oklahoma Panhandle, through central Arkansas, along the southern border of Tennessee, through central North Carolina, and northeast to Delaware (see map below). Official snowfall amounts of up to 18 inches were reported from locations in central Oklahoma and along the mountainous portion of the North Carolina - South Carolina border; some unofficial amounts were even higher. Freezing rain and sleet were also widespread, especially along the southern perimeter of the snowfall area.

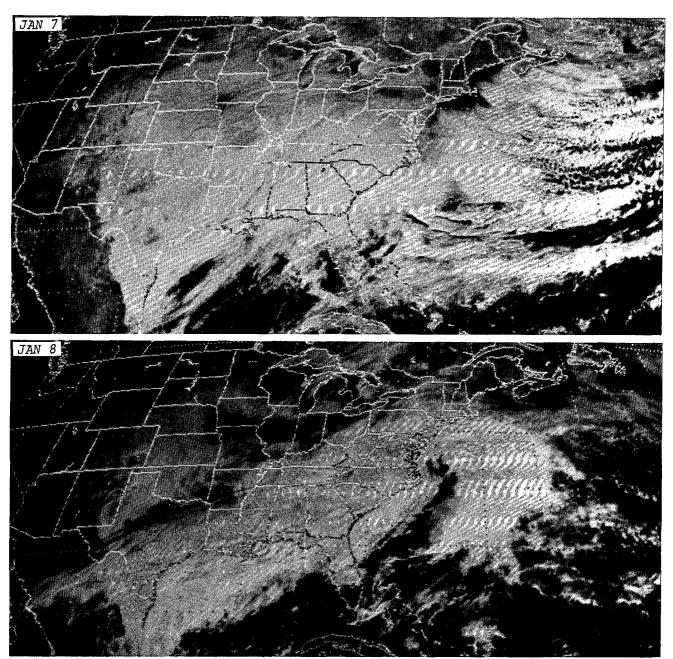
Occurring in an area of the country that is unaccustomed to such accumulations of ice and snow, the storm resulted in numerous and widespread business, school and road closings, power outages, and traffic accidents. Many deaths and injuries were indirectly related to the storm, and costs due to damage and cleanup were high (cold temperatures following the storm prevented a quick melt of the accumulated ice and snow). Damage of particular note was that done to the poultry industry. In Arkansas alone, 215 chicken houses collapsed under the weight of ice and/or snow, killing an estimated 3.5 million chickens. The estimated loss was about 23 million dollars. About 100 houses collapsed in each of Alabama and Texas, killing 2 million and 1.75 million birds in each state, respectively. Eighty collapsed houses in Georgia resulted in the death of about 0.5 million birds.



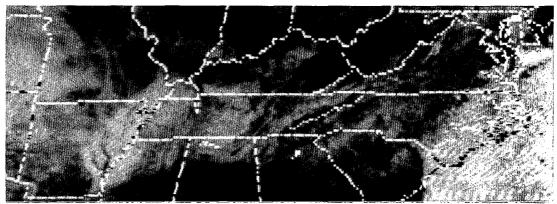
Snowfall analysis of the January 5th through 8th, 1988 storm in the Southern U.S. ---Mapped by the University of Chicago from Cooperative Observer data supplied by NCDC, and additional data and analyses supplied by NWSFO's at Norman, Oklahoma and Fort Worth, Texas.



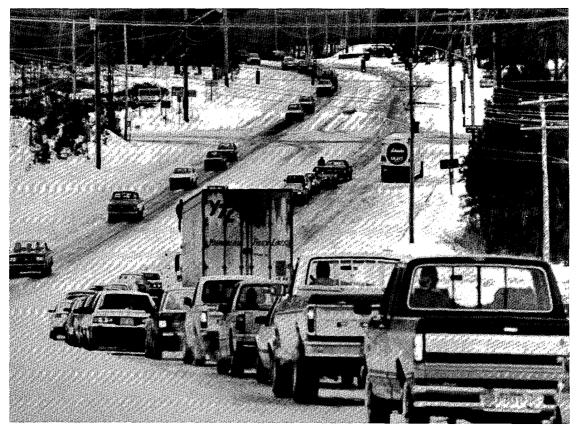
GOES 6 satellite, visible images, each taken at 0930CST on the first two days of the storm, show the clouds of the overrunning precipitation pattern as it spread eastward from the Rockies to the Lower Mississippi Valley. ---Photos from NESDIS.



Additional satellite imagery shows the storm at 1030EST on January 7th and 8th as an organizing low pressure center moved up the Eastern Seaboard. Snowfall was experienced throughout the Northeast as well, but its impact there was far less than it was in the South.



A GOES 6 satellite, visible image taken at 1430EST on January 11th reveals the lingering snow-cover from the storm, seen here during a short period of clear skies between storms.



Traffic backs up at an icy intersection in Fayetteville, North Carolina, a city which rarily sees a trace of snow, let alone the approximate 6 inches it received during this storm.

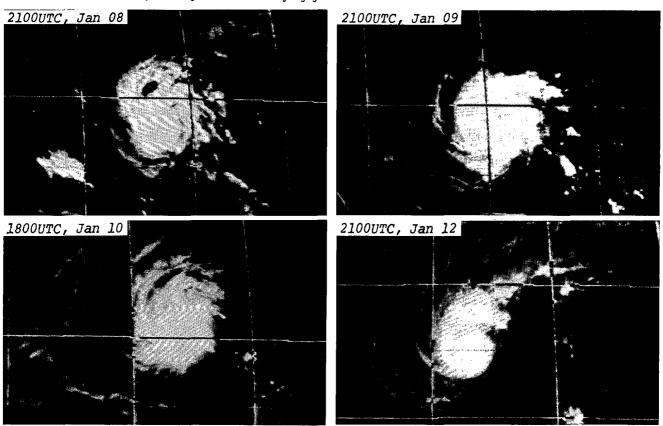


Road crews spread sand on a sloped intersection in downtown Fayetteville during the storm.

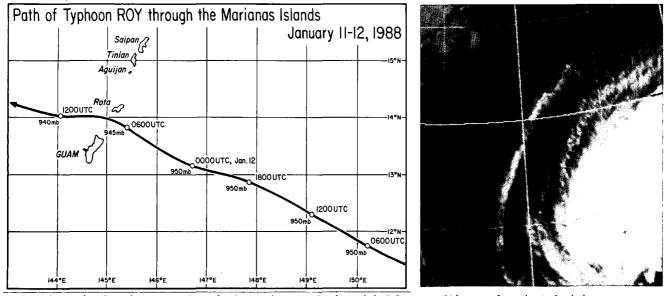
3. TYPHOON ROY in the WESTERN PACIFIC on January 7-18, 1988

On January 7th, Typhoon ROY developed within the Marshall Islands and began an 11 day, westward trek through the Western Pacific Ocean to the South China Sea where it dissipated on the 18th. Enroute, ROY passed through both the Marianas and Philippine islands, causing damage at each. ROY was a rare January typhoon which exhibited unusual strength and persistence for the time of year. It also had a mirror-image twin, Tropical Cyclone ANNE, across the Equator in the southern hemisphere.

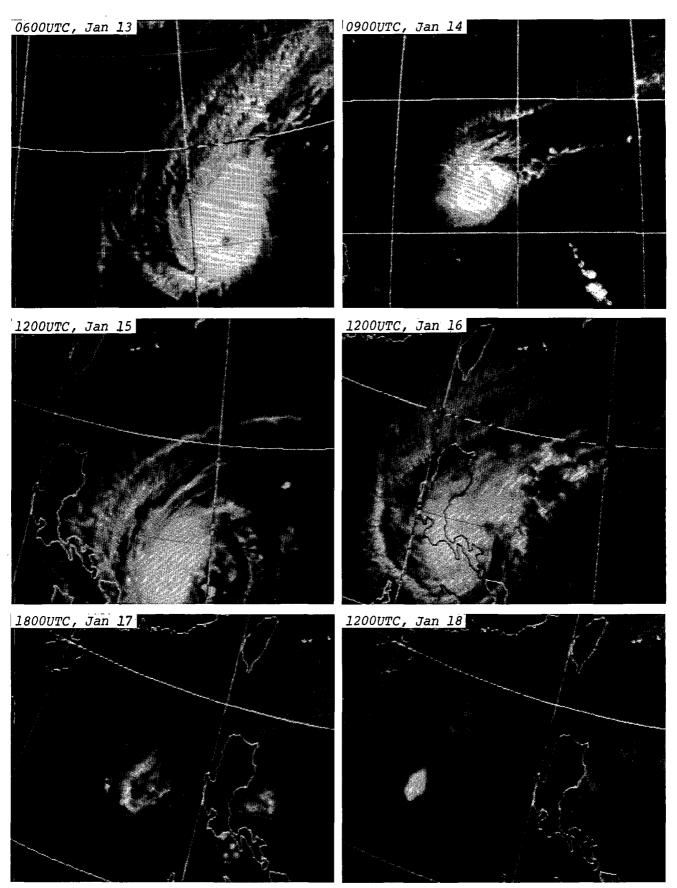
In the Marshall Islands, high water and wave action destroyed nearly one third of the oceanside homes on Ebeye, resulting in more than 5 million dollars in damage and forcing 2000 people to seek shelter in other structures. In the Marianas Islands, ROY passed between Guam and Rota on January 12th (see map below) while producing maximum sustained winds estimated at 125 mph near its center. Rota, within these winds, sustained damage to structures and crops estimated at 4.5 million dollars. On Guam, where winds gusted locally to 100 mph or more, damage was estimated at 23.5 million dollars. Saipan and Tinian received only minor damage. There were no fatalities on the Marianas, and injuries due to flying glass and debris were few.



GMS-3 satellite, infrared images show ROY's swirling cloud pattern as the storm strengthened while traveling from the Marshall Islands to the Marianas. ---Photos from NESDIS.



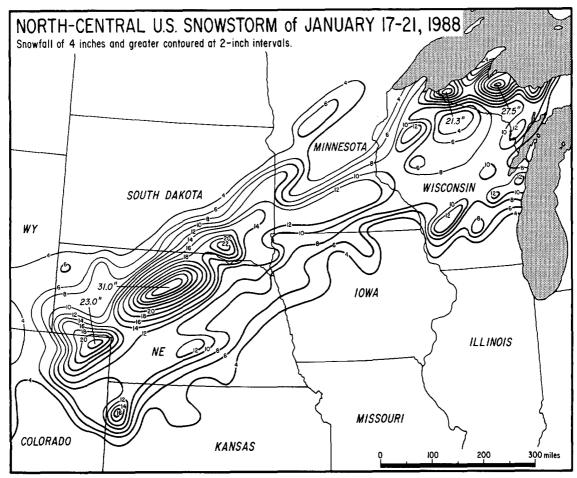
LEFT: The path of Typhoon ROY through the Marianas Islands, with 6-hour positions and estimated minimum pressure indicated. RIGHT: A GMS-3 satellite, infrared image shows ROY exhibiting a small eye while passing through the Marianas at 0700UTC on January 12th. ---Map and photo provided by the NWSFO at Honolulu, Hawaii.



Additional GMS-3, infrared images show ROY as it made its way from the Marianas Islands, through the Philippines, and into the South China Sea where it dissipated. ---All above photos from the National Environmental Satellite Data and Information Service, Washington, DC.

4. SNOWSTORM in the NORTH-CENTRAL U.S. on January 17-21, 1988

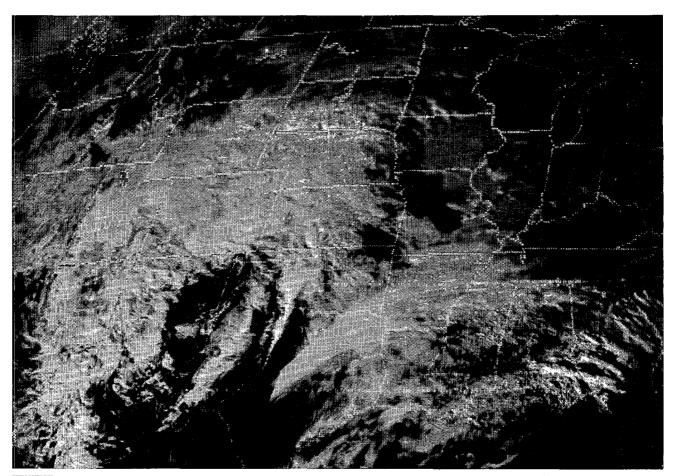
An intense low pressure system that originated over the Pacific Ocean about 500 miles west of San Francisco, dumped a heavy snow over the North-Central States as it crossed the midsection of the country, moving east from Southern California to the Oklahoma Panhandle and then northeast to the Great Lakes on January 17th to the 20th. Snowfall amounts of 18 inches and greater were common from northeast Colorado to southeast South Dakota, and similar amounts were reported from the Upper Michigan snow belt where lake-effect snow persisted well into January 21st. The maximum amount, 31.0 inches, was recorded 9 miles east-northeast of Elsmere in north-central Nebraska. There was considerable blowing and drifting of the snow as 50 mph winds swept the central plains, creating blizzard conditions with near-zero visibilities and closing many Interstate Highways along with most other highways and secondary roads. Winds were generally 30 to 35 mph elsewhere. The storm system also produced a tornado outbreak in the South, featured here as Item 5 on following pages.

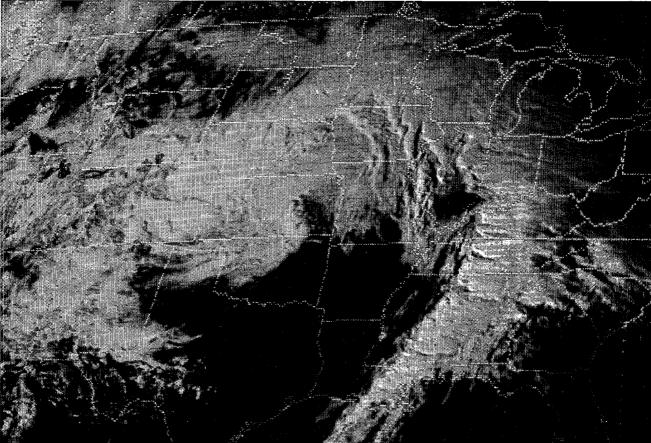


Snowfall analysis of the January 17th through 21st, 1988 storm in the North-Central States. ---Mapped by the University of Chicago from Cooperative Observer data supplied by NCDC and additional data from the NWSFO at Milwaukee, Wisconsin.



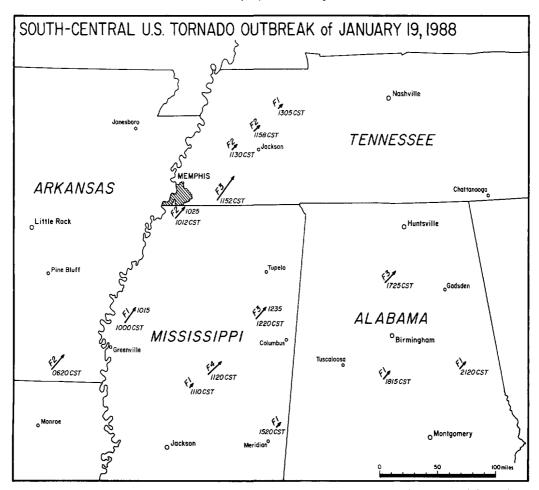
A GOES 6 satellite, visible image taken at 1130PST on January 17th shows the spiralling cloud mass of the already well-organized storm system as it made landfall in Southern California. At this time, heavy snow was already beginning over much of the Rockies, and would later spread to the plains.
---Photo from NESDIS.



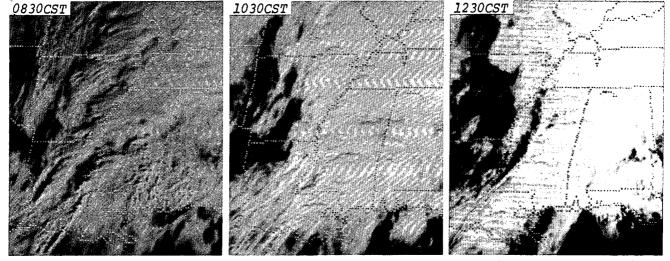


With its redeveloping comma cloud dominating the midsection of the country after crossing the Rockies, the intense winter cyclone is markedly evident in these two GOES 6 satellite, visible images taken at 1530CST each on January 18th (top) and January 19th (bottom). The line of thunderstorms from western Kentucky to southeast Louisiana in the January 19th photo was responsible for 14 tornadoes that struck Arkansas, Mississippi, Alabama, and Tennessee. ---Photos from NESDIS.

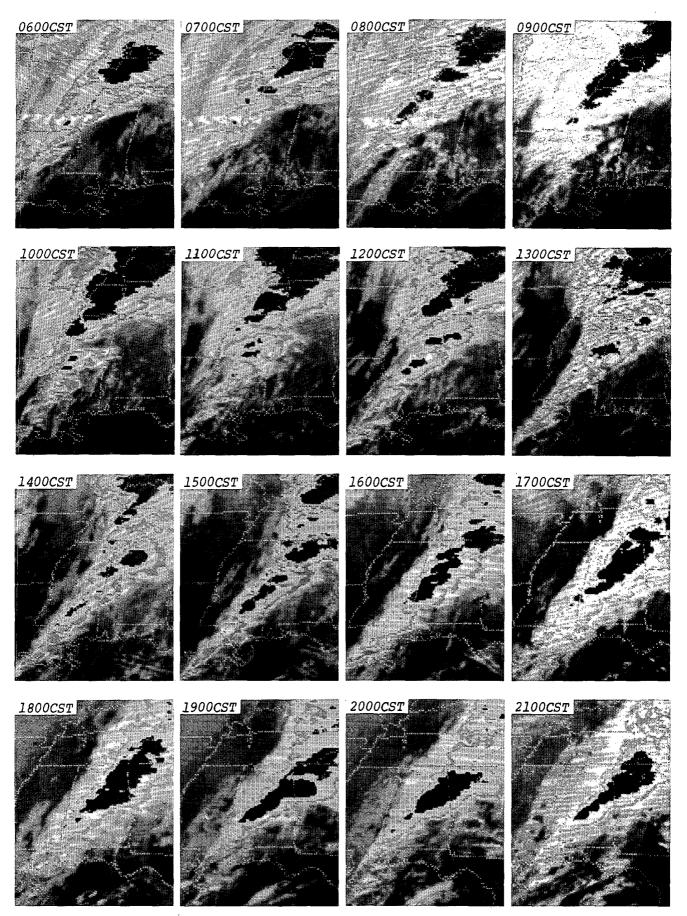
On January 19th, a strong frontal system associated with the winter cyclone previously described in Item 4 (page 14), pushed its way through the South-Central States. Intense thunderstorms formed along the front and spawned 14 tornadoes in a 4 state area. One tornado was F4 in intensity, 3 were F3, 4 were F2, and 6 were F1. By state, Arkansas had one (F2), Mississippi had 6 (1-F4, 1-F3, 1-F2, and 3-F1), Tennessee had 4 (1-F3, 2-F2, and 1-F1), and Alabama had 3 (1-F3 and 2-F1). The tornadoes carved a cumulative 113.5 miles of damage path: 47.0 miles in Mississippi, 30.5 miles in Tennessee, 21.0 miles in Alabama, and 15.0 miles in Arkansas. There were a total of 5 deaths, all in Tennessee, and 90 people were injured.



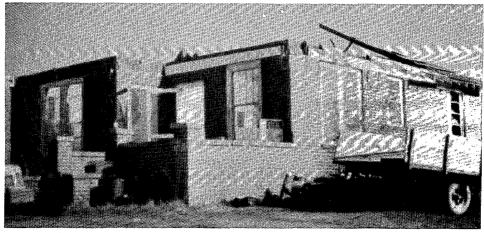
Distribution of tornadoes in the South-Central States on January 19th, 1988, with maximum F scale and touchdown times in CST indicated. ---Mapped by the University of Chicago from information provided by NWSFO's at Birmingham, Alabama; Little Rock, Arkansas; Jackson, Mississippi; and Memphis, Tennessee.



Three GOES 6 satellite, visible images taken on January 19th show the thunderstorm line during a 4-hour period of the late morning when it produced 8 of its 14 tornadoes, including the violent, F4 tornado near Kosciusko, Mississippi. ---Photos from NESDIS.

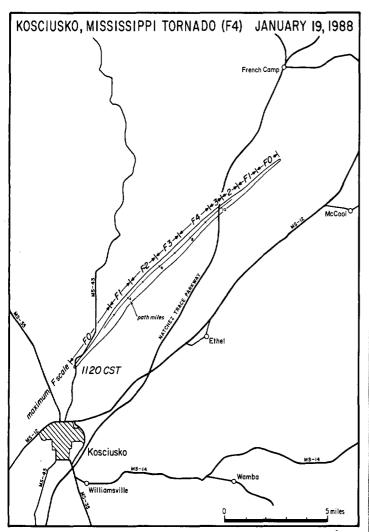


GOES 6 satellite, infrared images taken hourly from 0600CST to 2100CST on January 19th, the approximate times of the first and last tornadoes of the outbreak, demonstrate the constant evolution of cells within the thunderstorm line. The line itself often consisted of more than one row of cells, and its configuration was ever-altering.
---Photos from the National Environmental Satellite Data and Information Service, Washington, DC.



About 3 miles east of Goodman in central Mississippi, this house was unroofed by an F1 tornado. Roof debris was scattered for several hundred yards to the northeast. The parent thunderstorm later produced the strongest tornado of the outbreak north of Kosciusko. ---(NWS).

The strongest and only F4 intensity tornado of the outbreak touched down north of Kosciusko, Mississippi and carved a 13.5 mile path toward the northeast (see map below). Traveling through mostly rural landscape, the tornado destroyed only 5 homes and damaged 7 others. Also, and quite miraculously, there was only one injury and no deaths. Damage to trees however, was extensive.



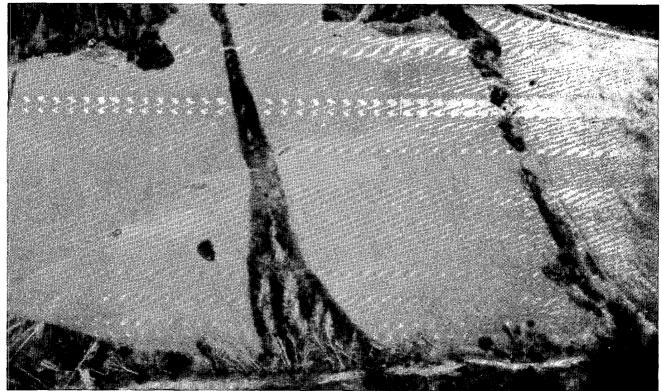
Path of the Kosciusko, Mississippi tornado of January 19th, 1988, with path miles from the point of initial touchdown and maximum F scale along the path indicated. ---Mapped from aerial survey by Duane J. Stiegler, Wind Research Laboratory, The University of Chicago.



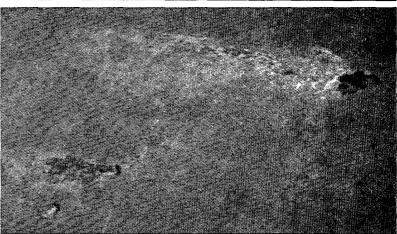
A desroyed barn, the first major structural damage inflicted by the tornado, at 3.4 miles along the path from the point of initial touchdown. ---(UC).

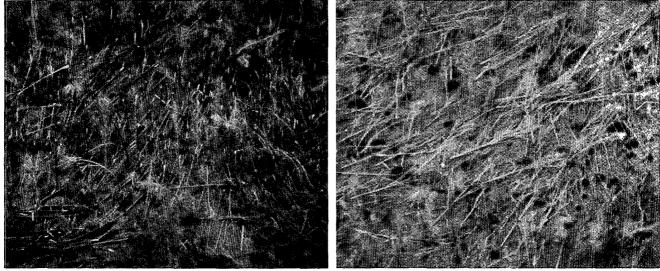


On the southern edge of the damage path at the 5.0 mile mark, one mobile home was totally destroyed while a neighbor's was spared. ---(UC).

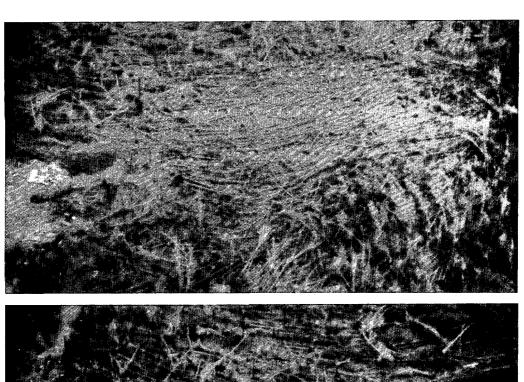


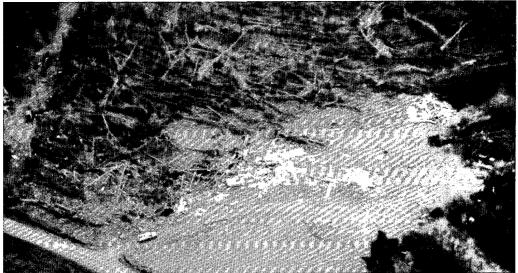
ABOVE: The tornado's path through a field at about 4.8 miles from its start is revealed by a sudden change in the direction of blown-down grass shown by its angle of reflectance, marking the course of the tornado's center from the lower left to the upper right side of the photo. Note that large trees at the south edge of the field (bottom of photo) were all uprooted toward the tornado's center, and bales of hay at the north edge were strewn toward the vortex center as well. RIGHT: A close-up overview of divots within the field pictured above, most likely created by the impact of flying debris. --- Both photos (UC).

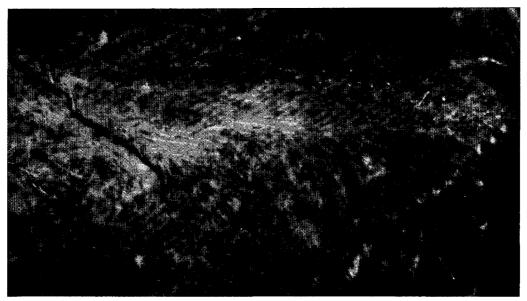




As shown above, damage to trees was extensive, but varied in form due to the characteristics of the trees and soil. The trees at left were mostly snapped off above ground level while the trees at right were mostly uprooted. ---Both photos (UC).







TOP TO BOTTOM: Three southeast, aerial views at 7.7 to 8.0 miles along the path show the first F4 intensity damage produced by the tornado: a stand of pine trees that were steam-rolled by the tornado's "first wind" (winds rushing in toward the vortex from the direction opposite its translation), a demolished home east of the trees, and just across the road from the house site, a field of pine saplings, some of which were plucked from the ground by the tornado. The F4 damage was confined to a narrow band very near the tornado's center, an indication that the core was very small and the maximum winds had spun tightly around it. The tornado passed from the right to the left side of each photo.——All photos (UC).

Overhead view of a destroyed wood-frame house in the Liberty Chapel community, 9.5 miles along the tornado's path. The house was 80 years old and although some signs of brittleness were noted, it was well built. It is estimated that the structure was destroyed by F3 intensity winds. The tornado's center passed by about 50 yards to the southeast of the house, just outside the top of the photo. ---(UC).





Ground-level photos above and at right show the remaining debris of the same house shown at the top of the page. The house was slid about 10 feet from west to east as it was being dismantled by the tornado's winds. A man in the west side of the house was injured; had he been in the east side his chances of survival might have been less since the crumbling house was being carried in that direction and he would have been subjected to a higher risk from flying debris. ---Both photos (NWS).

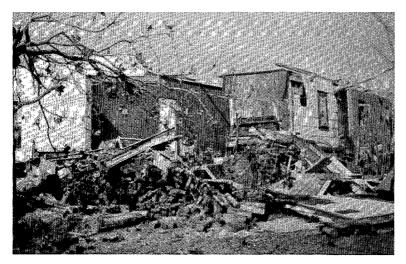




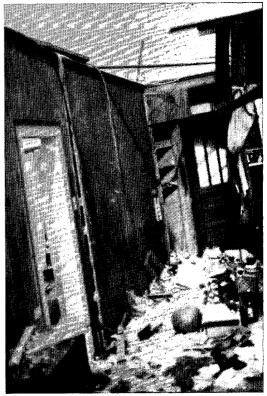
The same home site as above, seen from the road immediately to its south. --- (NWS).



Aerial views of two additional homes at Liberty Chapel, one of which was completely blown from its foundation as the tornado's center scored a direct hit on it, and a second that had many interior and exterior walls left standing. The tops of the photos are directed west-northwest (left) and southwest (right). ---Both photos (UC).



Ground-level views above and right show the southeast corner and interior hallway, respectively, of the partially destroyed home shown in the photos at the top of the page. The tornado's center passed by about 50 yards to the northwest of the house, and the home sustained this F3 damage from the southeasterly inflowing winds. Three people were huddled together in the hallway and survived uninjured. ---Both photos (NWS).





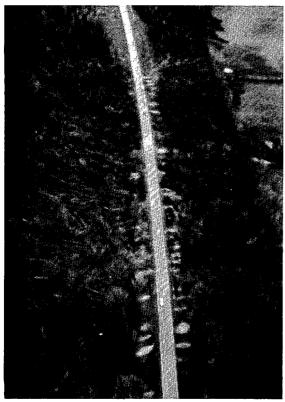
The site of a three bedroom wood-frame home that was cleaned off its cement slab by the tornado. The site is the same one shown in the aerial photos on the previous page. Upon hearing the tornado warning, the resident went next door to stay with her parents, so no one was in the structure when the tornado hit. ---(NWS).



Just northeast of the previously pictured site, debris from the house is seen spread out over several hundred yards. ---(NWS).



Uprooted bushes and snapped trees along the west edge of the Natchez Trace Parkway, at the south edge of the tornado path. ---(NWS).





Aerial views left and above show the extensive damage that the tornado did to trees along the Natchez Trace Parkway. The tornado crossed the area of the left photo from the upper right corner to the lower left. The white spots along the side of the road are sawdust piles created during the clearing of fallen trees from the highway. ---Both photos (UC).

---Photo Credits for pages 18 through 24:
(NWS)....by David Imy, NWSFO at Jackson, Mississippi;
(UC).....by Duane Stiegler, The University of Chicago.

6. HIGH WINDS over EASTERN WYOMING on January 24-25, 1988

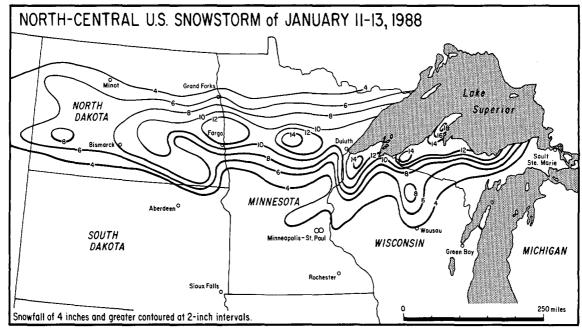
Strong surface winds of up to 72 mph were induced over eastern Wyoming by a strong upper-level flow from the north throughout the day on January 24th and into the morning of the 25th. The 72 mph gusts were recorded at Gillette between 0400 and 0600 MST on the 24th. In the Gillette area, a roof was torn off of a house, and a mobile home was flipped over onto two cars. The winds also affected portions of southwest South Dakota and the Nebraska Panhandle, and snows accompanied the winds in the Big Horn Mountains and Black Hills. Many roads were closed due to the strong winds, as well as by their associated drifts which attained 14 to 16 foot depths in southeast Wyoming.



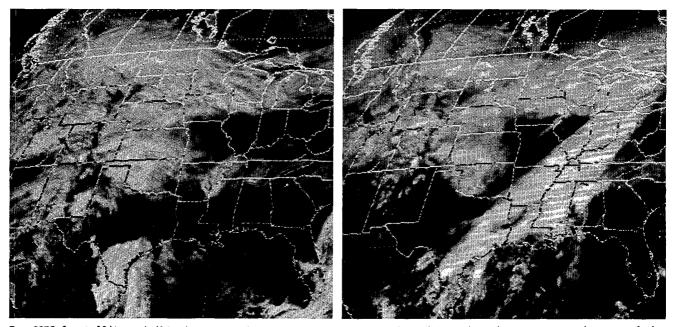
A mobile home in the Gillette, Wyoming area that was flipped over by wind gusts on January 24th. The home landed atop one car and was stopped from rolling farther by another car and a fence not seen in the photo. ---Photo by Kathy Novak, The News-Record, Gillette, Wyoming; and supplied by Hugh McRandal, NWSFO at Cheyenne, Wyoming.

7. SNOWSTORM in the NORTH-CENTRAL U.S. on January 11-13, 1988

On January 11th and 12th, a winter cyclone swept eastward out of the Rocky Mountains, passing through southern South Dakota, southern Minnesota, and central Wisconsin before turning northeast and heading into Canada. The storm dumped heavy snow in a band through central North Dakota, northern Minnesota, and the extreme northern portions of Wisconsin and Upper Michigan (see map below), as well as in mountainous areas of central Montana (not mapped). For parts of north and northwest North Dakota, including Minot, it was the first measurable snowfall received since the Winter of 1986-87. Lake-effect snow from Lake Superior contributed greatly to the amounts along the south shore snowbelt where snowfall persisted well into January 13th. Strong winds within and in areas to the south of the main snowband produced blizzard conditions with blowing and drifting snow over much of the multi-state area. The result was the usual closing of roads, schools and businesses; cancellation of mail delivery, airline flights, and other scheduled events and services; and increase in traffic mishaps.



Analysis of storm-total snowfall from the January llth through 13th, 1988 storm in the North-Central States. ---Mapped by the University of Chicago from Cooperative Observer data supplied by NCDC and additional data supplied by NWSFO's at Bismarck, North Dakota and Milwaukee, Wisconsin.



Two GOES 6 satellite, visible images, each taken at 1330CST, show the quick-moving winter storm as it crossed the north-central tier of states on January 11th (left) and January 12th (right). ---Both photos from NESDIS.

			JANUARY
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ALZ-001-002-003- 004-005-006-007- 008-009-010-011-012- North, Central, and South-Central	06 2100- 0 0 7 5 Ice, snow 07 1000CST A paralyzing episode of freezing rain, sleet, and snow covered much of the northern two-thirds of Alabama. Ice-laden trees fell onto power lines, resulting in nearly 100,000 homes losing electricity, some up to	Jefferson County	19 1800CST 0 0 ? 0 TSTM Wind (G6) Wind gusts to 60 mph occurred in Tarrant City, a northeastern Birmingham suburb. Also torrential rain produced some brief street flooding near downtown Birmingham. 19 1815CST 6 440 0 0 5 5 Tornado (F1)
	four days. Costly damage occurred as thousands of trees crashed onto homes, wehicles, and fences. The roofs of about 100 poultry houses collapsed under the weight of the ice and snow killing 2 million chickens. About 15 million dollars worth of chickens and chicken houses were lost. The heaviest ice accumulation of about 1 inch was over about a 100 mile wide band extending through the Tuscalosa, Birmingham and Anniston areas. Lesser accumulations of ice occurred as far south as Demopolis, Montgomery, and Auburn. The heaviest snow accumulations from the storm fell from just north of Birmingham to the Tennessee line. Huntsville received 10 inches, Haleyville 5 inches, and Cullean 4 inches.	Counties Marshall County	A tornado touched down at Ashby in northeast Bibb County, then moved northeast hopping and skipping about 6 miles on into southwest Shelby County. It tore the roofs off several homes, and destroyed a garage, barn, and syrup mill. One mobile home was destroyed and several more were moderately damaged. At Montevallo, in Shelby County, trees were uprooted and a telephone company truck was blown off the road. Damage to buildings was estimated at 100 thousand dollars while timber damage was placed at 200 thousand dollars.
Mobile County	18 0455CST 0 0 0 0 Hail (1.00) One inch in diameter hail fell at Chickasaw.		One chicken house was destroyed and another was heavily damaged in the vicinity of Albertville.
Clarke County	18 0544CST 0 0 0 0 Hail (1.00) 18 0620CST 0 0 0 Hail (1.00) Quarter size hail fell at Jackson at 0544CST and at Grove Hill at 0620CST.	Shelby County	19 1830CST 0 0 3 0 TSTM Wind Two porches were blown off houses 4 miles southwest of Wilsonville. Also numerous trees and tree limbs were blown down in the same area. Large trees were also uprooted at Harpersville.
Fayette County	19 1410CST 0 0 3 0 TSTM Wind Several awnings were blown off buildings and several trees were blown down in the City of Fayette.	DeKalb County	19 1835CST 0 0 3 0 TSTM Wind Numerous trees were uprooted between Geraldine and Crossville. A chicken house was also destroyed near Geraldine.
Morgan County	19 1550CST 0 0 0 0 TSTM Wind (G60) Near the edge of Decatur high winds gusting to 60 mph broke large branches off trees.	Blount County	19 1850CST 0 0 4 0 TSTM Wind At Snead, two chicken houses were destroyed and a mobile home and trailer were damaged. A few trees
Madison County	19 1630CST 0 0 ? 0 TSTM Wind 'High winds damaged an electronics plant and blew a tractor-trailer off the road on State Highway 20 in Huntsville.	Calhoun County	and power lines were also blown down. 19 2020CST 0 0 4 0 TSTM Wind At Anniston, a 60 foot high County Emergency Management Agency communications antenna was blown off the Calhoun County Courthouse roof. Several large trees
Greene County	High winds downed trees near Boligee and Mt. Hebron.		were blown down at scattered locations in the same area.
Madison County	19 1657CST 0 0 ? 0 TSTM Wind High winds blew part of the roof of an industrial building near the Huntsville/Decatur Jetplex.	Cleburne County	19 2030CST 0 0 ? 0 TSTM Wind Trees and power lines were blown down at several locations in the north and western parts of the county.
Tuscaloosa County Cullman County	19 1720CST 0 0 4 0 TSTM Wind Trees were blown down at Echola. Also in the same area the roofs of a smokehouse, outhouse, and a barn were blown off. A mobile home was bent in the center and a barn was destroyed. 19 1725CST 10 440 0 35 7 4 Tornado (F3) A tornado hopscotched northeast through the City of Cullman Leaving a path of destruction 10 miles long and averaging 1/4 mile wide. The tornado first touched down in the Loretto Community near the inter-	Clay County	19 2120CST 5 100 0 0 5 0 Tornado (F1) A small tornado touched down near State Highway 49 near the Clay/Tailapoosa county line then skipped 5 miles northeast. The tornado crossed State Highway 77 just south of the junction of State Highways 49 and 77. In the Melion Valley Community area there were numerous trees twisted and contorted. In the same area, the tornado damaged 2 houses and destroyed a chicken house. Also destroyed were three barns and four storage houses. A church received severe damage to its roof and steeple. Damage estimates were placed at 60 thousand dollars.
	section of County Roads 37 and 1), damaging several buildings. The tornado then toxoched down at a mobile home park on Alabama Highway 69 near Interstate 65 tearing apart most of the 15 mobile homes. Although the mobile homes were destroyed, none of the occupants were killed or severely injured. The tornado continued to cross a parking lot of a nearby distribution center where 50 to 75 tractor-trailer rigs were tossed like fallen dominoes. Siecel sides of some of the trailers were ripped open. Closer to downtown Cullman, the tornado caused extensive damage to a shopping center, lifting off roofs and blowing out all the windows of several stores.	Lee County	19 2335CST 0 0 ? 0 TSTM Wind High winds ripped off part of the roof and the sides of a building at a tire plant in Opelika. Several mobile homes were damaged at scattered locations throughout the county.
	The tornado crossed U.S. 31 destroying 13 homes and badly damaging 28 more. Then, near the intersection of U.S. 278 and State Road 69, at St. Bernard's Abby,	² ARIZONA	
	several buildings were damaged. The cornado damaged a church at the Mr. Olive Community about 5 miles northeast of downtown Culiman before finally lifting. Total damage estimates were placed at nearly 11 million dollars. Miraculously, no one was killed. Of the 35 injuries, none were serious. A survey showed that 13 houses, 15 mobile homes and six businesses were destroyed; four houses, one mobile home and four businesses suffered major damage; five houses, four businesses and four mobile homes had minor damage; and 105 houses, three mobile homes, five apartment complexes, 18 businesses and no church suffered enough damage to fall under the "affected" category.	AZZ004-008 Central Arizona	A cold front associated with a strong winter storm moved into the deserts by late in the day. Winds and heavy rain combined to damage a large window at a Tempe hotel. There were also temporary power outages affecting some 10,000 customers throughout the Valley. High winds also knocked out power for several days to customers in the Payson area.
Hale County	19 1730CST 0 0 0 0 TSTM Wind Numerous trees were uprooted between Wedgeworth and Sawyerville.		
Bibb County	19 1800CST 0 0 ? 0 TSTM Wind High winds whipped through the Antioch Community about 6 miles east of Centreville causing scattered damage to roofs of houses. Also trees were blown down along State Highway 219 in Centreville. Trees and power lines were blown down one mile northwest of the Randolph Community.		

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Mountains CO2002-004-008- 010	30-31 6 to 18 ir two day pe	ches oriod.	of sno Even	ow fel	0 il ir e20	1 the	moun	Heavy snow tains over this fell at Gothic.	GAZ005-006-007 GAZ008-009-010	A The Gee no: prost: pa dr	e precipion aroust thern the ecipitation at as a rt of the izzle and ther midnites	tation und l hird hird mixto stat a few	began am ES of Ge quickline of s te as snow fi	ourred as s T on orgia y ove leet s a cold urries	across now in Januar by 7 respread nd fred rain.	north the cy 7, am. i the czing Excepreci	th and the no and By the ce grain the pt fo lpitat	central Georgia. rthwest corner of spread across the 1 pm EST, the intral part of the and the southern or spotty freezing ion ended shortly move totaled 10 to
6 CONNECTICU CT205-06, Coast- al portion	O4 Mornin Snow accum the coast the state.	ulatio to onl The	y one	inch	in die	the	north	Heavy snow nches along west hills of tivities and		in ac br mo li so	ches of ross metro cad band stly slee ght glaze uth-centra vannah. T	in the opolite across t and it of from the of from the of the opolite was children to the opolite the	e north an Atla s the a freezing sezing: t of ildren	i-centi inta s iid~sts rain sain mi the si were	al pared accumulate accumulate willed willed	rt o hens. a fro lated th re n a and	of the Far Collins Col	ties with 2 to 4 to state in a band ther south, in a numbus to Augusta, 3 inches deep. A curred across the from Albany to njured in sledding
CT2all, Statewide CT201-02-03-04 Central and northern portion of state	closed sch (MS-Aftern OB-Early Heavy snow all of the closing of got an ear with the e 25-Aftern Heavy snow area. The central po power line the state the storm	ools for considering the constant of the const	cor the development of the correction of the cor	ed up he hes he hes he hour he dup he te an hour he dup he sta	to 6 to 7	o to sevy	O 10 in resul and m ny ma 0 12 in espec ing ts eral twelv	theavy snow ches across ted in early any commuters jor problems Heavy snow ches across the ially in the o trees and tomers across hours during e hours. The	Ben H411 Courter	wh ho 51 co an tr in in st no an mo an no sr	ich resultuses collifo,000 chi 6,000 chi unties. T dd damagin avel acro the sou the sta acte where orthern co dd nearly sold Athens	ted in apsed ckens, he roog seves the th-cen te. Muties all of seves area ites r	n one from in s f of a seral o e north tral a ost oc freezi where these anorthwe mained	death at the winderina thers. The arm had the arm had the first the himools to closed and.	and a feight ad loc collap There If of t toout 36 in the collap eaviest were cl throug dany sc ed tho	ew in of s ation sed c wes he si ,000 e son urred snow osed h the hool crugh	njurie snow ns ac onto b re ma tate a power uth-ce I and w fell on th e 12th syste the	traffic accidents see. Eighty chicken and ice, killing cross the northern obset, sinking two jor disruptions of min minor problems to outages occurred entral part of the 1n the extreme 1. Most businesses re 7th and 8th and a from the Atlanta ens in the extreme 15th due to the Lightning
	which held in that ar	ortion down ea. T	of the sine usi	he st now a ual p	ate ccum	had : ulat: road	a cha ion t cond	nge to rain o a few inches itions caused closed schools.	Ben Hill County, Fitzgerald			caused	fire c	-	\$25,000	dam		t a lumber yard.

	·										,						_	,		JANUARY 19
		CAL	PATH	Ē		. OF SONS		MATED MAGE					CAL	PATH	Ē	NO. (PERS		ESTIM DAM	ATED ¹ AGE	
PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF (MILES)	WIDTH OF PATH (YARDS)	KILLED	INJURED	PROPERTY	CROPS	1	HARACTER OF STORM	PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF F	WIDTH OF PATH (YARDS)	KILLED	INJURED	PROPERTY	CROPS	CHARACTER OF STORM
GEORGIA	Δ.			L	1			1			IDAHO		L	1	1			l	L	L
Polk County,	19	2139EST			0	0	?	0	Tstm V	/inds	TDZ006	17	1600			0	0	0	0	Heavy Snow
Ceadertown Floyd County	19	2141EST			0	0	?	0	Tstm V	Vinds	West Central ID		2200 MS	?		-				•
10SW Rome Douglas County,	19	2230EST			0	0	?	0	Tstm V	inds			dage Mow s Basin ı						nches	of snow while
Douglasville Fulton County, Atlanta	19	2345EST			0	0	?	0	Tstm V	Vinds										
Heard County, Roosterville	19	2350EST			0	0	?	0	Tstm V	∀inds										
Cowetz County, Newman	20	0008EST			0	0	?	0	Tstm V	linds										
Clayton County, Jonesboro	20	0040EST			0	0	5	0	Tstm V	Vinds	111 ILLINOIS									
	ever dam thur was down pla off	eral loca ning on the age was nderstorm destroye ntown Atl te glass ice build	tions le 19th limited winds d in anta v window	across until to estima southwhen the vs on Jones	norteafter trees ted to est Fl unders the sboro	thwest midni and be't loyd (storm groun was	Ge Lght pow- potwe count; wind id f hea	orgia on the er li en 60 y. A b s blew loor vily	during 20th. More down and 70 mank was out several out several damaged	I damage at the late dost of the med by the aph. A barn damaged in reral large building. An when the the roof to	TLZ003 Northeast IL	O6 Sub-with air zero date The arct Chic Cour home brok	wind ch temperation on the sea, and wa- high tem cic, bone cago metro mety medicaless in	ill factore at morning the contillication area al examine the Chi mains	tors do O'Hare of the oldest e reach due to iner's cago ar and pir	Internate 6th and reading med only hypothe office rea. But the period in (ation ation ation d wa g dur g 2 l bute ermia Sl elow Dak 1	nd 50 nal Ai as a n ring t below ed to a, acc helter zero Lawn,	below rport ew rec he 3 d zero o three ording s were temper	che Chicago area zero. The actual reached 14 below ord low for the ay cold period. In fatalities in the to the Cook opened for the atures caused wn, and Calumet
10 IDAHO IDZ008] 9	0600-			0	0	0	0	Heavy	Snow	12 INDIANA									
North Central ID	9	1400 MS				0	0	0	Heavy	Cmour	12 INDIANA									
West Central ID	.	1800 MS1					·				INZ-01 Extreme Northwest Indiana	26	0800 EST			0	0	?	?	Heavy Snow
	McC Ida	m moist Pa tral Idaha all and it ho City; (Pierce; a	and p ts nearl inches	roduced by moun s at El	heav; tains; k Cit;	y snos ; 6-8 y and	v: 8 inch	-14 in es fro	nches fe n Cambri	ll in		band LaPor 1 pm	induced s about 20 te County as roads reduced t	miles u . Scho became	wide, c ools we hazard	overing re dism ous and	mos isse vis	st of ed arou	ind	
ID7007 Sun Valley area	10	0000- 1500 MS	r		0	0	0	0	Heavy	Snow										
		same warm up to a 1							f snow t	o Ketchum										
IDZ006 North Central ID	11	0000- 0600 MS1	r		0	0	0	0	Heavy	Snow	13 IOWA									
IDZ006 Valley Co.	11	0300 MS1	ŗ		0	0	3	0	High W	Vind	IAZ001-003-005-006- 007 - 008-SDZ018	1	1000 CST 2100 CST	-		.0 ()	4	0	Blizzard
IDZ008 Pullman, Genesee	11	0300- 0900 MS1	r		0	0	3	0	High b	Vind	Northern Iowa	Agr	cound bli							of Iowa. It bega
IDZ001~005 Melba, Boise, Caldwell, Emmett	11	0100- 0300 MS1	r		0	0	4	. 0	High V	Vind		east nort 50 N stan	by earl hwest wi PH, redu dstill.	after ds of ed vis Severa	noon. 30 to 4 1biliti 1 hundr	Snowfa: O MPH, les to : red stud	ll an and zero ient:	mounts occas . Tra s were	were ionall vel wa stran	under 3 inches, b y gusting to over s brought to a ded in schools in
IDZ002 Twin Falls, Buhl, Hansen	'n	0400 MS1	ľ		0	0	4	0	High W	find		clos Minn	ure of I esota bo	ntersta der.		ecross 1	Vor ti			resulted in the om Ames to the
IDZ003 Pocatello, Rexburg	11		r		0	0	3	0		Wind (59)	IAZ001-005-009 Western Iowa	12 Stro		roared			Iowa			High Winds afternoon of the reas, and scatter
IDZ004 Franklin & Oneida Counties	11	0900 MS1			0	0	3	0	High V			over		inds i						railer was blown re recorded at
	ear five and Ida and pat ble wer Uncon white	ly morning e inches a drifting B. Power ho. Winds Gem count ios, and I w off the e damaged fficial wi le the Pool.	y hours at Idahe snow at was keep to sestimate to polew door Purple near Baind gustatellord conditions of the high the high to be at the high the h	. Six of City. Indicate the color of the col	inches High ed scl out or tween arge t imney olf Co Hanse 7 mph t rep- were 1 9:00 a	s of a wind hools ver ma 50 au trees. A lourse en, whe were orted reports am, who were well am, who were well am, who were well am, who will be seen.	snow ds ca and any s des 1200 club hich reco an o ted i	fell a used e roads ection mph i troyed foot s house. killed rded i fficia n Fran winds	at Elk C: extensive in ZONE: s of Son n Canyon l at lear ection a Barns I two con n Twin l al wind a klin and were est	e blowing 5 2, 3, 4, uthern n, Owyhee st two of roof and sheds ws. Falls, gust of 68 d Omeida timated up	IA2001-004-005-006- 009-SD2018 Northwest lowa IA2002-003-007-008 Northeast lowa	19 20 A st 8 in the west The The tedu the sout	tches of : 19th. To corner, storm be; precipitated visible aft. heast of developed	em appr now ac de heav where san wit ution q illity rrncon Iowa.	ross mu iest ac nearly h a wix uickly to near the sto As the ortheas	ch of Necumulate a foot ture of turned zero a rm weak second	from forth fon and fre to s it ti cened I sto	hwest was or d a ha eezing snow. imes in d as a orm mo- ccumul	Iowa d ver th lf of rain, Winds n many new s ved ac	Snow and Heavy Snow Snow and Heavy Snow st produced 4 to uring the day on e extreme north- snow was reported sleet and snow. of 20 to 35 MPH areas. During torm developed ross Illinois, was in the 4 to
IDZ001 Canyon County	1	0800 MS7		mpa/Cal	0 dwell	? srea	? prod	0 uceda	Dense				ch range drifting			to 30	MPH	cause	i cons	iderable blowing

				JANUARY 198
. PLACE	TTIME - LOCAL STANDARD LENGTH OF PATH (VARDS) NULES) NULED 30/05836 NULED 30/090837 PROPERTY		PLACE	TTME - LOOAL STANDARD STANDARD STANDARD STANDARD STANDARD STANDARD STANDARD ONLES STANDARD ONLES STANDARD CROPS CR
L			L	
IAZ001-002-004-005- 006-009-SDZ018 Northwest Iowa	23 1100 CST- 0 0 4 23 2300 CST Snow fell over much of Iowa during the early 23rd. Amounts were generally under 2 inches 5-inch amounts occurred over the northeast t Late in the morning of the 23rd, northwest w swept into the state. These winds oversprea state. Blizzard conditions developed over t as winds occasionally gusting over 50 MPH wh and reduced visibilities to near zero. Inte for a few hours during the evening from Ames border.	, although isolated hird of the state. irinds of 25 to 40 MPH da a large part of the hie northwest third injuded up the new snow irstate 35 was closed	KSZ001-002-004 Northwest Kansas	18 1030 to 0 0 4 0 Blizzard 19 2030CST An intense storm system moved across portions of Colorado, western Kansas and Nebraska. The storm produced heavy snow, strong winds and severe blowing and drifting snow. Snowfall amounts from the storm included 16 inches at both Goodland and St. Francis. Northwesterly winds of 25 to 50 mph produced severe blowing and drifting snow across the region. Many drifts in the area were 3 to 5 feet tall. A peak
1AZ001-002-003-004- 005-006-007-008-009- 010-011-014-015 SEZ018 Most of Iowa TAZ001-002-004-005 006-SEZ018 Northwest Iowa	24 1600 CST 0 0 4 25 0800 CST 0 0 4 26 1600 CST 0 0 4 27 2100 CST 0 0 4 28 2100 CST 0 0 4 29 2100 CST 0 0 4 20 2100 CST 1 0 0 0 4 21 2100 CST 1 0 0 0 4 22 2100 CST 1 0 0 0 4 23 20 C 0 45 MPH winds whipped tair. Portions of Northwest and North-Centrathe 60 to 65 MPH range. Most of the rest of speeds under 55 MPH. The winds resulted in feet high in Northern Iowa. Interstate 29 i closed for a while during the late afternoon hours, while Interstate 35 from Ames north twas closed during the evening. This was the state 35 was closed this month. Temperature the onset of the winds. Over Western Iowa, 30 degrees in less than 2 hours were common. were in the 30 to 55 degrees below zero rang the 25th. Over the Northwest and North-Cent areas had wind chill values of 65 degrees be	inches of new snow is dropped to near zero the new snow into the all lowe had winds in the state of the state had wind snow drifts 6 to 12 in Western lowe was and early evening to the Minnesota border third time that Interes dropped rapidly with temperature drops of Wind chill indices by the morning of trail counties, some	KSZ003-006 Southwest Kansas	gust of 61 mph was clocked at Goodland shortly after 1500 CST on the 19th. All roads and highways were closed in the area from 1400 CST on the 18th through 1000 CST on the 19th. Visibilities were reduced to nearly zero on the 19th between 0800 CST and 2000 CST. Interstate 70 was closed from Salina to the Colorado border during the storm. Other highways that remained closed during the storm included US-40, US-24, US-83, K-24 and K-25. A man was killed on 1-70 in Kansas City, KS when his truck slid out of control on rain slick pavement and crashed shortly after midnight on the 19th. M60V. 19- 1800 to 0 0 3 0 High Winds 20 0300CST The same storm system that brought blizzard conditions to northwest Kansas also produced high winds across southwestern portions of the state. The strongest winds occurred from 1900 CST on the 19th through 0200 CST of the 20th where winds averaged between 35 and 50 mph. A peak gust of 53 mph was recorded at Dodge City shortly after 0100 CST on the 20th. A wind gust of 52 mph was also clocked at Liberal.
			15 KENTUCKY	
14 KARISAS			Caldwell County	19 1000- 0 0 5 0 Flash Flood 1530csT
14 KANSAS KSZ003-005-006- 008-009-011-012- 017 Southern Half of Kansas	5- 0500 to 0 0 4 7 1200CST A major storm system brought locally heavy snows of 7 to 13 inches to the southern half of Kansas. The heaviest snow fell across southwest and south central Kansas on the 6th between	0 Heavy Snow	Christian County	3.76 inches of rain fell on the 19th with the heaviest rainfall occurring during the late morning and early afternoon hours. A building, in Prenceton, which housed sever pre-treatment equipment was destroyed when high water collapsed one of the walls and the roof caved in. Also many streets and roads in the county were covered with water. 19 1100- 1030000000000000000000000000000000
	0100 and 2400 CST where 9 to 13 inches was reported. Snowfall amounts included 13 inches at Anthony and Arkansas City; 12 inches at Dodge City; 11 inches at Garden City and Pratt with 10 Inches at Great Bend. Other amounts from the storm included 9 inches at both Wichita and Coffeyville; 8 inches at Russell and 7 inches at Salina. Lighter snowfall amounts of 2 to 4 inches fell across north-central and northeast sections of the state. Northeasterly winds of 15 to 25 mph caused minor drifting across south central Kansas. Highway 44 in the Anthony area was closed for a short time dur the early morning hours of the 7th.		Bell County	1430CST A 3.54 inch rainfall forced officials to evacuate 36 people from 12 trailer homes as the South Fork of the Little River ran over its banks in a subdivision of Hopkinsville. Also many streets and roads in the county were covered with water. 19-20 2200- 0 0 5 0 Flash Flood 0300EST At least 2.40 inches of rain caused the Yellow Creek to overflow its banks. The hardest hit area was the business district along Cumberland Ave in
KSZ009-012	11- 1600 to 0 0 4 12 0600CST	0 Blowing Snow		Middlesboro where the water rose to over three feet in some buildings.
South Central Kansas	Strong southerly winds of 20 to 40 mph cause considerable blowing and drifting of snow already on the ground from the snowstorm on the 6th and 7th of the month. Several highwere closed in the area. Light freezing drials ofell intermittently during the night ad to the already hezardous travel conditions. deaths occurred because of the poor road conditions. An elderly couple were killed witheir car slid on a patch of ice on Interstal 135 in McPherson County. Their car slid acr the median into the path of a semisful er tin the opposite direction. The accident occurring the late evening hours on the 11th. M80V. F75V.	rays zzle zzle idding Two vhen nte coss aveling	16 LOUISIANA LAZOO1 Northwest Louisiana	24 0800CST- 1 0 5 ? Flooding a 5 1200CST Flooding continued over the extreme northwest portion of the state as a result of heavy rain that fell during the last week of December 1987. (See December 1987 Storm Data). Most streams, lakes, and bayous crested on Jan 2, 1988. Mowever, flooding of camps, trailers, and houses continued along Bayou Dorcheat and around Caddo Lake, and several roads were closed due to high water. On Jan 2, 1988, a 75 year old man drowned while attempting to walk to safety after leaving his car which stalled in high water. M75V.

																JANUARY 198
PLACE	DATE TIME - LOCAL STANDARD	OF PATH ES)	F PATH :DS)	NO. OI PERSOI	NS D	IMATED!	CHARACTER OF	PLACE		TIME - LOCAL STANDARD	OF PATH ES)	F PATH (DS)	NO. PERS	ONS	DAMAGE	CHARACTER OF
	DATE TIME -	LENGTH OF I	WIDTH OF PATH (YARDS)	KILLED	PROPERTY	CROPS	STORM		DATE	TIME - STANDA	LENGTH OF P	WIDTH OF PATH (YARDS)	KILLED	INJURED	PROPERTY	STODA
LOUISIA	NA							MARYLA	ND	and D	. c .					
LAZO01-002-003-004- 005-006, North- west, Northeast, West Central	06 0300CST 07 1200CST			0 12			Sleet and Ice Storm	MDZ003-005-006 -007	25	1130EST Snow, i freezin in the	nitia g rai north	n, acc ern co	umula	ted 4	to 7 in	Winter Storm
	extreme north area, and are South of slee significant inch of ice bridges and deffects were remained unse occurred. Sch 5 days. Numer 220, were clo	ird of the line. So west boround 1 in the accumulate accumulate felt in leasonably lools through high each at very best of at very best of the line leasonably lools through accumulations and the line leasonably lools through accumulations a	e state leet acreder, are leet acreder, are leet along warm so led on the many are recold al led out led out many are recold al led out are led out are led on the many are recold al led out	, gener cumulat ound 2 g a lin il temp s on the tree gh the eas unt the arncludintimes difference of the second control of the arncludintimes difference of the control of the second control of the s	ally no ed arou inches e from erature e groun s and p storm e il the le meli ea were g Inter ue to i	orth of and 3 in the Monroe es prevend. However lie ended or 12th as ing of e closec estate by conditions and the conditions of the conditions are ended or conditions and the conditions are the conditions are ended or conditions.	a Leesville- ches along the Shreveport to Mansfield. Inted widepsread ever, 1/2 to 3/4 mes, and on the 7th, the the temperature the ice I between 2 and fighways 20 and fitions and	MD2008-009	25	2100EST Snow be low cen leaving	gan 1 ter a	ate in pproac	hed t	he are	à,	Winter Storm
	accidents wer Approximately	e report	ed over	the ar	ea due	to icy		19 MASSACHUS	ETT	S						
	for up to 3 c gusty winds t particularly DeSoto, Verno several large ice, and gust the worst win	10,000 days, as to snap t acute in on, Winn, c chicken ty winds,	residence accumulate rees and the part and Received recei	ces were ations of power rishes of River collaps g arount the a	e without ice lines. Of: Nat lines. In the displayment of the displaym	and com Power chitoch Rusto r the to	ctricity, some bined with outages were les, Sabine, on area, ourden of sleet, ens. This was	MAZO2-07-09 Eastern MA MAZO1-02-04-05- 06-07-08-09 Statewide, excep	Hea mor sch U8- 09	ning cau ools as Afterno Worning	accus sing well on as	cance as di id eve	llations of the second of the	on of ing tr	classes classes e morn	Heavy snow ches during the s at many ing commute. Heavy snow inches across
Red River Parish 8 E Coushatta Natchitoches Parish Chestnut	damage was es	stimated	(0 0	?	?	Hail (1.00)	Cape and Islands	the 6 t Man bec ing	region o 8 inch y events ame very . many	with les in were heze school left v	8 to 1 the cance ardous ols and	lÖ ind wester elled durin d bus:	ches in por when ng the inesse	n the lation of travel: afterness close	Goston area and f the state. ing conditions noon and even- ed early and major problems
Bienville Parish 2 SE Bienville Jackson Parish Quitman Lincoln Parish Choudrant Ouachita Parish Calhoun Union Parish 5 SW Spencer	19 0232CST 19 0315CST 19 0330CST 19 0355CST 19 0410CST		((0 0 0 0 0 0	? ? ?	? ?	Hail (1.00) Hail (1.00) Hail (0.88) TSTM Wind	MaZ01-04-05-06 North central, central and west- ern portion	Hea cen at pow aff to	tral por Worceste er lines ected se several	snow rtion r. 1 resu veral hours	accumi of the line we: lited : thous during	ulated e stati ight d in sca sand e	te with of the attere electres store	o 6 to h 6½ in snow o d power ic cust m. Sno	8 inches in the ches reported on trees and closes which comers for up we amounts of
	central Louis strong wind o blown down ov	iana dur Justs, an	ing the d brief west Oua	early i heavy achita	morning rain. N and sou	hours lumerous theast	Union Parishes.		usu ski	al poor	trave	ling	cond	itions	caused	erksnires. The i a number of lems were
St Tammany Parish Mandeville St Tammany Parish	19 1620CST 19 1700CST			0 0	?		TSTM Wind TSTM Wind									
Mandeville	A line of the the late afte gusts and min	rnoon pri	oducing	isolate			uisiana during strong wind	20 MICHIGAN			•	- NONE F	REPORTE	.D		
								21 MINNESOTA								
17 MAINE -	-		- NO REPO	ÖRT REC	EIVED			MNZØ16 Ramsey County	,	early morning . Paul mar	n fell	in from	_	0 (0 and die	Extreme cold
								MNZØØ1-ØØ2-ØØ6-ØØ7- Ø10-Ø13-Ø15-Ø17	M790				0	0 (0	Blizzard, Heavy
18 MARYLAND	and D.C.							West MNZØØ3-ØØ4-ØØ5-ØØ8- ØØ9-Ø11-Ø12 Northeast	Heavy				northw		ing the	Heavy Snow
MDZ001 MDZ007-008-009 MDZ002-004-005 -006 MDZ003	becomi snow m over t accumu areas: report Airpot Maryls	ET Egan la ng heav nixed wi the east	the in the sleer in the sleer she were so, Car in 8 to 9 aties a	the e et and ore co greate oline ches; inche	on Jevening free ountiest in and To Nations West of 4 to	0 0 0 anuary g. The zing r s. The the c albot albot anstern o 7 in	ain entral counties d BWI ches,		lith Detro late acro reach Grand dropp winds into were The Sinjur where of 65 condi	By 2200 oit Lakes in the event alone of a function of a fu	to Bem rening and s aes at and 12 ar zero ad. B1 froad froad col rep teout nches ar to let up	x to endidification while a couthern Bemidji. Bemidji inches in nor izzard sota by is in majorted 2 condition at 163 improve in sou	ght in Snow sareas on Minne , 9 to sat El thwest conditrearly in y are 129 accome al 111y fer 100CST.	ches of pread if sleet sota. 12 inc y. Mea and we ions sp mornin as due idents so react 11. Wi By 124 e north	S snow ac nto nort: and free By 0300C hes at D inwhile v ist-centr iread fro g on the to poor includin hed sout ndom rec SCST on west. B eota by 1	cumulated from heast Minnesota ezing rain fell ST accumulations eer River and isibilities al Minnesota as m northwest 12th. Plows visibilities, g 31 involving heast Minnesota eived a peak gust eived a peak gust

																	,		JANUARY 1988
		CAL	PATH	<u>. </u>	NO. PERS			ATED [†]				CAL	PATH	Ŧ.	NO. PERS		ESTIM. DAM	ATED!	
PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF F	(YARDS)	KILLED	INJURED	PROPERTY	CR0P5	CHARACTER OF STORM	PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF !	WIDTH OF PATH (YARDS)	KILLED	NJURED	PROPERTY	CROPs	CHARACTER OF STORM
MINNES	OTA			•						MISSISSI	PPI		-						
	19-20	1030CST			0	0	0	0	Heavy Snow	DeSoto County,	19	1012-	9.5	70	0	1	6	0	Tornado (F2)
South	of t Thun cent accu fall hour rest deve nume and Minn	he 19th am der was ob ral sectio mulated at en around accompani ricted vis loped in w rous motor businesses esota duri	d across served by ms of the Worthing Minneapo ed the se ibilities fatonwan (ists were to close ng the me	south of mid- e stat gton. lis an how, r s to n County e stra e. Sn orning	neast -after te. I By 2 nd Rooresult near 7 /. Ma anded. now gr y of t	Minner rnoon: By 1530 2100CS chester ting in zero. any roa . The radual! the 20th	sota in th OCST T 6 i r. W n blo Six ads w snow ly di th bu	during the sout 12 inc inches Vinds of wing s to eig were bl v cause iminish it pers	ht foot drifts	GNNN Hernando to 3ESE Southaven Madison County, 5NE Flora	time the a su 10 h half Othe dama	s in a 9.5 tornado se bdivision ad major o million o r outbuilo ge from th	i mile it down south lamage lollars lings a ne torn	stretch for 3 of Sout and 79 . The nd fenc ado was	. Neamiles haven. minor tornades als estim	ir th and In dama do al so re mated	e midd inflic total ge. D so der ceived at 1.	le por ted it , 4 ho amage ailed heavy 2 mill	wm 4 separate tion of the track, s worst damage in mes were destroyed, was estimated at on 14 cars of a train, damage. Total ion dollars. Thunderstorm Winds s northeast of
	rece fell	ived a max	imum of : Iowa bord	3 inc	hes o	of snow	w. E Twin	ight i Citie	nches or more s metropolitan	Yazoo County,	Flor	a. Some 1	in wa	s blown	off o	of a O	shed.		Thunderstorm Winds
MNZØ16 Ramsey, Washington	23	afternoon			1	0	0	0	Extreme cold	18SE Yazoo City	Tree	s were blo county.	wn dow	m on Mi	ssissi	ippi	Highwa	y 16 i	n extreme southeast
Counties		adriplegic Lake. M2		hypot	hermi	ia afte	er ic	e fish	ing on White	Holmes County, Goodman	19	1105CST			0	0	?	0	Hail (1.00)
MNZØØW-ØØS West and South	24-25	0840CST			0	1	0	0	Blizzard	Attala County, 3SE Goodman	A mol	1110CST bile home	was de	stroyed	0 by st	0 rong	4 winds		Thunderstorm Winds unoccupied bus was
	the	24th, into	the sout	hwest	by e	early a	after	moon t	the morning of hen through the	Attala County,		off the	road.	40	n	n	5	0	Tornado (F1)
	temp Arct whit to n	ic front c e. Travel ear zero i	nd winds reated b came to n blowing	gusti izzar a sta snow	ing to rd cor andsti v. Wi	o 55 mi ndition ill as inds re	iles ns de visi emain	per ho escribe ibiliti ned str	ur behind the d as a wall of es fell suddenly ong through the	3E Goodman	A smi traci blowi	all tornac ked northe	lo touc ast 1. use an	5 miles d a bar	throu	igh m	ostly	f Good farmla	man. The tornado nd. A roof was and irrigation
	degr sout Many 20 h was bliz cont morn	ees below hwest Minn motorists ours in th hospitaliz zard for s	zero. Si esota on became seir cars ed with several he rift snow	the 2 strand near severe ours 2 and	eight 23rd v led. Comfr fros 2 mil hampe the so	t inche was blo Severa rey and stbite les eas er snow outh.	es of own i al pe d Bin afte st of w rem Temp	snow into 4 cople s ngham L er bein Litch novel e peratur	11s 50 to 60 that fell in to 8 foot drifts. pent up to ake. A woman g exposed to the field. Winds fforts on the es were	Attala County, 3N Kosciusko to 16NE Kosciusko	An erforer of the community of the compand of the c	xtremely pasted area ne tornadounity about were in damage on ugh very e was only letely did 7 others w	13.5 cowerfu of nor was i t 16 m the ce ly 10-2 sparsel one i smantle were da ission	700 1, but theaste n a 3 m iles no nter of 0 yards y popul njury. d his h maged. estimat	rn Att ile s rtheas the t wide. ated c One n ome. Five	ala tret t of corna Ev count nan w A to barn	County ch in Kosci do pat en tho ry, it was bad otal of ns were	moved. The the Li usko. h with ugh the was mily cut 5 home also	Tornado (F4) through a heavily strongest portion berty Chapel The strongest the width of the e tornado traveled inraculous that when the twister es were destroyed destroyed. The agged at a cost of
22 MISSISSIPPI		*								Sunflower County, Rome		1120CST	ı trail	ers wer	0 a blow	0 m ov	3 er in		Thunderstorm Winds
MSZ-001-009 North and Central Mississippi	the inch fell area ice	state. Ac es of snow south of south of storm occu	ross the occurred this area a Greenvi rred. Po	north I. A I to a IIe-A wer I	narro narro Gree berde ines	of sig quarter ow band enville en lir and tr	r of d of e to ne to rees	cant w the st 4 to 6 Aberde Inter	winter Storm inter weather to ate, 6 to 12 inches of snow en line. In the state 20, a major d causing wide-	Attala County, 5NE Kosciusko Tallahatchie County, 6SW Charleston	of S 19 Seve torn 19	unflower (1125CST ral roofs ado to the 1145CST	were o	iamaged i. Also	0 by str 3 too 0	0 rong ol sh	4 winds leds an	O that r id 1 ba	Thunderstorm Winds rotated around the rn was destroyed. Thunderstorm Winds
	line after close snow	were extr r the even ed. Some	emely haz t had end buildings Numerous	ardou ed. and	s and Schoo roofs	d nearl als wer a colla	ly un re cl apsed	drivea osed a due t	in Jackson were burg to Columbus ble, even 2 days nd many businesses o the weight of the th many cars and	Oktibbeha County, 3SE Maben	were 19	snapped of 1205CST rous trees	off and	severa	1 cott 0	ton t	railer ?	s were	overturned. Thunderstorm Winds
Harrison County, 7N Gulfport		0520CST			0	0	?	0	Hail (1.00)	Webster County, Dancy	1		olew dr	wn tree	0 s alor	0 na th	? ne Nato		Thunderstorm Winds
Tippah County, Ripley	19	0100CST			0	0	?	0	Hail (1.25)	Clay County and	19	1220-		100	0	0	6		Tornado (F3)
Leflore County, BN Greenwood	Stro					Fs in a		11 com	Thunderstorm Winds munity north of satellite dish was	Chickasaw County, 15NW West Point to 16SE Houston	torn	ado moved nd 1232CS	into t and o	he extr Iissipat	eme so ed aft	outhe ter m	ast co noving	rner o about	Tay County. The of Chickasaw County 2 miles into the hardest hit area.
Sunflower County, Indianola	Stro	0125CST ng winds r , in the s l backstop	ame area,	seve	ral t	ree to	ops w	at a s	Thunderstorm Winds inches in the control of the con		In t Clay Anot Near	otal, 10 P County. her 150,00	nomes w Damage OO doll of fe	ere des to hom ars of nces we	troyed es was damage re lai	d and s est e was id fl	l anoth imated done at. A	er 5 d l at 35 to far	amaged, all in 0,000 dollars. m machinery. 40 acres of timber
razoo County, Phoenix		1000CST	u bel		0		?	0	Hail (.75)	Monroe County, Gibson	19	1235CST			0	0	0	0	Funnel Cloud
Bolivar County, 7SW Cleveland to 4N Cleveland		1000CST- 1015CST		35	0	•	4		Tornado (F1)	Monroe County, 7W Aberdeen	19	1235CST	_		0	0	3		Thunderstorm Winds
	recei	ly barren ived major	fields, b damage.	ut 2 A fe	servi w mob	ce bui ile ho	ildin mes	gs were and per	ounty touching down o moved through e destroyed and 2 rmanent structures was 35,000 dollars.	Monroe County, 10NNW Aberdeen	19	rch was b 1245CST ng winds			0	0	y stro 4	-	nds. Thunderstorm Winds

	\Box		Ŧ	Τ	1	NO.		ESTIA	IATED†	Τ		٦ſ			ы	Ŧ). OF		ATED!	<u> </u>
Diver		LOCA	OF PATH	PATH	<u>ک</u>	PERS	ONS	DAJ	MGE	1	CHARACTER		DI 465		LOCA	JF PATH	PATH SS	PEF	SONS		AGE	CHARACTER
PLACE	DATE	TIME - LOCAL STANDARD	LENGTH C	WIDTH OF PATH	(YAR	KILLED	INJURED	PROPERTY	CROPS		OF STORM		PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF (MILES)	WIDTH OF PATH (YARDS)	KILLED	INJURED	PROPERTY	CROPS	OF STORM
MISSISS	IPPI												26 NEVADA									
Newton County, Lawrence	1	1400CST and powe	m line			0	0	? in la			nderstorm Winds		NVZ00N Northwest, Northeast, Extreme	05	0000PST 0000PST			0	0	?	0	Heavy Snow
Jasper County, Bay Springs	19 Sever	1510CST al trees	were t	olown	down	0 n nea	O r Bay	?	O ngs.	Thur	nderstorm Winds		Western, West Central and East Central Nevada	Lake level acros new 2	Tahoe Ba and beto S Northe A hour s	sin ran ∤een 6 rn Neva nowfall	ged fro and 13 da snow record	om 12 inche vfall Iwas	to 24 s bel range set a	l inche low 700 ed from at Love	s abo 10 fee 16 to 1ock,	Nevada and the ve the 7000 foot t. In the valleys 16 inches. A Nevada with 14 the Sierra Nevada
Lauderdale County, 16NE Meridian (Lauderdale)	A sma	ridian.	ort-li Damage	e was	torna to s	ido s stora	ge tr	railer	Naval s, pow	Air ver	Base northeast lines and trees.		NVZ0C3		1400PST	thern	Nevada .	0	0	0	0	High Winds
	Tine 1	ijuries w	ere u	o peop	pie m	*110 H			e mien		e storm passed.		Extreme Western Nevada	hit	extreme Warne to 77	estern MPH we	Nevada re repo	duri:	ng the in th	e after ne Reno	noon area	ific cold front and evening. Winds . The strongest a 49 MPH.
23 MISSOURI -				— NONE	iê rei	PORTE	Đ						NVZ002 Northeast Nevada	11	0430PST 0530PST			0	0	0	0	High Winds
														it pa		ough No	rtheas	Neva	ada. F	inds g	(us ted	g gusty winds as to 62 MPH airport.
24 MONTANA													NVZ003 Extreme Western Nevada	15 15	1930PST 0200PST 0000PST			0	0	6 0	0	High Winds Heavy Snow
MTZ 006-007	Six		diffic	cult d	of sn drivi	ing c	ondit	tions.	h of C Wind	enti	avy snow ral Montana f 30 mph closed			14th	causing	very h	igh win	ds. T	he gr	eatest	wind	e evening of the speed reported
MTZ 001-002	14 Area	0200 MST				0	0	2	0	Hea	avy Snow azardous most			the gust dama	Reno-Canr ever rep ge. There	on Inte orted : were	ernatio at the numerou	nal A airpo s rep	irpor rt. T orts	t. Thi he win of dow	s was ds cau ned po	was recorded at the strongest win sed widespread wer lines, broken esidential house
MTZ 003-007	Wind		mph al ta and	i in t	the f	pper	Yell	ge of Lowsto	the Ro	cki	gh Winds as from Glacier caused the			bors ceil \$160 dame the whic \$500 Heav	swimming ing of a ,000 in d ged or de Stead Air h is loca ,000 and y snow fe and in t	pool. high s amages stroye port. ted 10 \$600,00	A chap chool c . Sever d at th The es miles DO. An the mou	el st lass al pr e Ren timat north estim	eeple room ivate o-Can ed da of d ated s of	fell result airpl non In mage a owntow 15,000 Wester	throughing in anes a ternat the nate of th	into the neigh- th the roof and an estimated and hangars were cional Airport and Stead Airport, , is between lost power, da above 5000 from 6 to 12
25 NEBRASKA NEZ001-005-011	11	1545CST-				0	0	4	0	H1	gh Wind (62)		NVZ003 Bxtreme Western Nevada	17	0300PST 1600PST			0	0	0	0	Heavy Snow
Panhandle Nebraska	69 m 1945	.p.h. at	Scott: an was	sbluff s blow	fat wnof	1550 ff th	CST e hía	and 6	0 m.p. betwee	, h. en H	29CST, to at Chadron arrisburg downed.		, icoud		ly 5 inch							tern Nevada. International
NEZ009 Northeast Nebraska		0550CST				0	0	1	1		gh Wind (50)		27 NEW HAM	PSH	IRF		NO RE	PORT	RECEI	IVED		
NEZ008 Central Nebraska	12	hwest win 0950CST hwest win				0	0	1	1	H1;	lk. gh Wind (50)		E TANK HAMI	, 511								
NE2001-002-003-004- 005-006-007-008-009- 011-012-013-014-016-	19	1400CST- 2100CST				0	0	4	1	B1:	izzard		28 NEW JERSEY	, No	thern							
017-018 West and Central Nebraska													NJZ001-005-007-015 Northern NJ	1	1400EST			0	0	0	0	Heavy Snow
	with Snow to D heav 70 m	visibili fall of 6 ecstur an ler snow lles wide	ties a inche d east in exc from	t times or a of a cess o the s	mes n more 1 1in of 12 south	ear fel e fr inci pan	zero l wes om Ly hes s handl	in sn st of man t extend le nea	ow and a line o Merr ed in r Sidn	t blo fro riman an a ney r	tral Nebraska owing snow. om Beaver City n. A band of area about northeast		W/7001	nort dawn snow accu	heastward and by e or flury mulations	over arly a ies co range	the Atl fternoo ntinued	antic n the over 6-8 i	. The heav night nches	snow iest s final acros	oegan nowfal Ly end nort	Island then moved to fall just before I was over. Lighting by dawn. Final hern New Jersey.
	through this 24 in the push included	igh the si area lar iches at l iches at l ine storm	and hi ger sr Muller Tryon area g into 6	lls to and and Rusted to 1:	Lync Lync Rose, at 2 fo	rth- s in h, 2: and time: ot di	centr clude 3 inc 20 i s as rifts th sn	al Ne d 25 thes a inches high Nu tow an	braska inches t Brow at Th as 40 merous i clos	at s at mledfo to : highed.	Lynch. To Elsmere, e and Brewster, ord. Winds 55 m.p.h. ghways Schools		NJZ001 Northwest NJ	A mi afte snow Accu	rncon the fall was	rain a preci during genera	pitatio the ni ally ra	n had ght t	chan; aperi	ged to ng off	round all s to fl	Heavy Snow noon and by late now. The heaviest urries by morning however High Poin
NEZ005-011 Panhandle Nebraska	24	1500CST- 1800CST				0	0	2	1	H1;	gh Wind (55)											
	at t	lmes less andle. A	than peak	a qua gust	rter to 6	of a	a mil p.h.	le in was r	portio ecorde	ns o	visibilities of the t Scottsbluff ng motorists.											

	 	JANUARY 1
PLACE	TIME - LOCAL STANDARD STANDARD STANDARD STANDARD CHESS WICH OF PATH (MLES) CHOST STANDARD CHOST	PATE PAGE PAGE
28 NEW JERSE	Y, Southern	NEW YORK, Central
NJZ002-004 The Hetrepelitan Delaware Valley and Interior Pertiens of Southern New Jersey	04 0400 EST 0 0 3 0 Heavy Snew Snew began falling over Southern New Jersey around 7FM on the 3rd and ended 6 to 7 AM on the 4th. The snew was heavy at times and accumulated 3 to 5 inches over the Metrepolitan Delaware Valley Zene and 5 to 7 inches over the Southern Interior Zene. The precipitation fell meetly as rain or alcet or freezing rain ever Ceastal Southern New Jersey and Ceastal Delaware May. Snew	Area Wide 19 Late PM 0 17 5 ? Freezing rain, 20 Mid AM snow and sleet Snow, sleet and freezing rain made all modes of travel extremely dangerous in Eastern New York. Area Wide 25 PM 0 3 6 ? Snowstorm 26 PM A Nor'Easter snowstorm dumped eight to 19 inches of snow across
NJZ003-004-006 NJZ002 All of Southern New Jersey	accumulation was an inch or less ever these areas. OR 0600 EST 0 0 3 0 Heavy Snow OR 0700 EST 0 0 3 0 Heavy Snow Snew began falling around 11PM on the 7th and ended between 10AM and 1PM on the 8th. The accumulation of snow was: 3 to 6 inches along the Ceast, 4 to 6 inches ever the Netropolitan Delaware Valley, 5 to 8 inches over Ceastal Delaware Ray and 6 to 10 inches ever Interior Southern New Jersey.	Eastern New York. 26 AM 1 0 ? ? Arctic cold 30 FM Cold Arctic air poured into Eastern New York behind a mid-winter snowstorm. One (1) person died of exposure when she fell on an icy sidewalk and was unable to get back up. F-87 O (Delmar, NY)
29 NEW MEXIC Roosevelt and Lea Counties	6-8 Wednesday through 0 0 3 0 Ice Storm Friday Freezing rain and drizzle affected much of the eastern border countles of the state. Damage was limited to the Fortales to Tatum areas. Ice accumulations to three inches were reported in these areas snapping power lines and poles. Around 200 power customers were cut-off for varying amounts of time. Livestock loss was limited to sick and young amimals.	NYZ004 Lewis County: LowVille NYZ001-002-022 Cattaraugus County: Salamanca, Little Valley, S. Dayton Eric County: Gowanda, Springville, Orchard Park, Colden Chautbauqua County: Sinclairville, Cherry Creek Wyoning County: Warsaw
30 NEW YORK, WYZ016-017 Suffolk Co.	04 0800EST 0 0 0 0 Heavy Snow A low pressure system moving northeastward along the Atlantic coast deposited 5-7 inches of snow across Long Island during the late night and early morning hours. Dix Hills reported the greatest amount with 7 inches.	NYZ004 Lewis County: Turin, Lyons Falls, Highmarket, Lowville Oswego County: Pulaski, Redfield D4 Evening D6 Evening D7 D7 D8
NYZ014-015-016-017 Southeastern NY NYZ014 Rockland and Westchester Co.	1800EST 0 0 0 0 Heavy Snow 1800EST Strong low pressure system formed south of Long Island then moved northeastward over the Atlantic. The snow began to fall just before dawn and by early afternoon the heaviest snowfall was over. Light snow or flurries continued overnight finally ending by dawn. Final accumulations ranged from 6-8 inches over Rockland and Westchester Counties, 7-10 inches over Long Island and 6-12 inches in the New York Metropolitan area. 25 0100EST 0 0 0 0 Heavy Snow 0700EST A mixture of rain and snow began to fall around noon and by late afternoon the precipitation had changed to all anow. The heaviest snowfall was during the night tapering off to flurries by morning. Accumulations ranged from 6-9 inches.	NYZ002-004 Cayuga County Wayne County Lewis County Lewis County Lewis County NYZ001-02-22 Chautauqua County: Panama, Clymer, Sheridan, Sinclairville, Hartfield Erie County: Livingston County: Livingston County: Cattaraugus County: West Valley Monroe County: Rochester 0 0 4 0 Heavy Snow Narrow bands of lake-effect snow dropped 18 to 31 13 0430 EST 0 0 4 0 High Wind Celled trees and power lines.
30 NEW YORK, E New York	Central O7 AM O 2 ? Arctic cold O9 PM Arctic cold air moved into Eastern New York during the morning hours of the 7th. Temperatures dipped down to the minus 05-20 degree range. Two (2) persons suffered from frost bite as a result of this Arctic outbreak. Strong gust winds pushed windchill temperatures to minus 40 and lower. As the cold air moved across Lake Ontario, snow squalls brought snow in excess of three (3) feet to portions of Oneida County. In the Village of Boonville, more than 40 persons were stranded as snow drifts shut off roads.	Erie County: West Seneca Ice-jams formed along the Cazenovia Creek at West Seneca (near the Southgate Plaza) and along the Buffalo Creek under the thruway. 26 1000 EST 0 0 5 0 Heavy Snow Snow squalls began in Buffalo during mid- morning and lasted through early afternoon. Orchard Park received 8 inches. Depew received 12 inches, 10 in Lancaster. The snow disrupted road and air traffic, cancelled meetings, and closed schools.

			JANUARY 1988
	NO. OF ESTIMATED' PERSONS DAMAGE		NO. OF ESTIMATED DAMAGE
PLACE .	TIME - LOCAL STANDARD STANDARD STANDARD STANDARD STANDARD (MILES) WIDTH OF PATH (YARDS PATH OF PATH OF PATH (YARDS PATH OF PAT	PLACE	TIMB - LOCAL STANDARD
31 NORTH CAR	DLINA	NORTH	DAKOTA
NCZ005-006-008- 014, Central NC	03 1200EST 0 0 7 0 Ice Storm Preezing rain spread across central NC from south to north		The storm closed schools and businesses, cancelled sporting events, caused minor traffic accidents, stranded travelers, cancelled mail deliveries, and cancelled major airline flights at the Hector International Airport at Fargo.
	Starting at mid day. There was widespread damage to power lines and property - the NC Insurance News Service reported \$4.5 million in damage to homes and autos alone. The storm's effects lasted many days - some areas were without power for almost a week. Many people said this was the worst loe storm since the early 60s.		A 35-year-old man was working with a railroad section crew in the storm, about five miles east of Valley City, and was inadvertently left behind when the crew stopped work. He was later taken to a hospital in Valley City and treated for hypothermia.
NCZ003-004-005-006- 007-008-009-010-011- 012-013-014-015, All	07 0600EST- 0 0 7 0 Heavy Snow 1500EST	ND2009-010-012-013-	Only counties along the international border, in northwest and north-central North Dakota, were spared from this storm. 24 0700CST 0 0 4 0 Biizzard
except coastal NC		014-015-016-017-018	2100CST
	Heavy snow from an overrunning precipitation pattern spread over the state from west to east. This snow storm was notable because it produced up to a foot of snow across much of the state. In the western part of the state, snow depths were commonly 1.5 feet with Macon county reporting up to 20 inches. Cleanup was very expensive - \$8 million statewide - and schools in most areas were out for about a week. The cold weather following the storm caused the snow to linger, and several deaths were indirectly related to the cold. In the southeastern	Eastern and North Central North Dakota	A bligzard developed rapidly over eastern and north-central North Dakota on the morning of the 24th. Light winds, unrestricted visibilities, and temperatures in the 20s changed in one hour to northerly winds of 25 to 45 mph and zero visibilities in snow and blowing snow. Temperatures fell to the single digits by the early afternoon, and below zero by the evening. Only 1 to 3 inches of new snow fell over the area, but the strong winds and an existing loose snow cover was enough to create
Name of Green	part of the state, quite a few poultry houses collapsed because of the weight of the snow.		blizzard conditions. The storm subsided early the night of the 24th as winds decreased.
Haywood Co, Maggie Valley Transylvania Co	12 2130EST 0 0 3 0 TSTM Winds(60) 12 2130EST 0 0 3 0 TSTM Winds		The blizzard cancelled airline flights, halted travel and stranded motorists. The storm was indirectly responsible for a three-vehicle accident on Interstate 29 in the southeast corner of North Dakota. One motorist was killed and four others were injured.
	A line of thunderstorms moved through western NC during the evening. Trees and power lines were blown down in some areas, and ski operators closed lifts until the storms had passed.		and hardes. One motorist was killed and four others were injured.
NCZ016, SERN NC	15 0900EST 0 0 ? 0 Heavy Snow		
	Up to 7 inches of snow fell in Southport, and 4 to 5 inches elsewhere in the area. The 5 inches at Wilmington Airport was the third greatest 24 hour snowfall for January. The heavy snow was restricted to a heavy band just inland from the coast.	33 OHIO	04- Early l ? ? 0 Bitter Cold
NCZ009, Northern Mountains	26 0000EST 0 0 0 0 Heavy Snow	Entire State	Morning
	4 to 6 inches of snow fell in the northern mountains - mostly at the highest locations.		07 Afternoon Artic air moving into Chic caused a significant cold spell. Lowest temperatures on the 5th, 6th, and 7th ranged from about 5 below to 5 above zero statewide. A man in an unheated house in Hamilton died of hypothermia early on the 4th, M94P.
32 NORTH DAK	ΟΤΔ	OHZ003 Northeast Ohio	05 0530 EST 0 0 ? 0 Heavy Snow Four to 6 inches of snow fell on the area. The
NDZ009 North central ND	03- Night to 0 0 4 0 Extreme Cold 04 Morning		snow had started at about 1900 EST on the 4th. Snow fall continued over the area until early afternoon on the 5th, by which time accumu- lations of 6 to 12 inches were common.
	An outbreak of Arctic air sent temperatures down to 30° below, and the wind chill temperatures down to 95° below, over north- central North Dakota near the Canadian border.	CHZ001 Northwest Chio	25 2220 EST 0 0 ? 0 Heavy Snow
	This severe cold created excessive demand for heating in rural areas and communities. The overload forced utilities to shut off	CHZ006 Central Chio	25 2340 EST 0 0 ? 0 Reavy Snow
	heat for up to 16 hours. Temperatures dropped to 50 degrees in homes that did not have an alternate source of heat.	OHZ002-011 North Central and	26 0100 EST
NDZ002-003-004-005-	The extreme cold also froze many water and sewage pipes. 11- 1500CST 0 1 0 0 Blizzard,	Central Hills of Ohio	Four to 6 inches of snow fell. The snow had begun during the evening of the 25th.
006-007-008-010-011- 012-013-014-015-016- 017-018	12 1000CST Heavy Snow Snow began falling in southwest North Dakota around 0800 CST on		
Eastern, most of Central, and most of Western ND	the 11th, and spread rapidly into the northwest and south-central sections by Noon. During the afternoon of the 11th, the snow spread over the rest of the state.	34 OKLAHOMA	
	The snow ended over west and central North Dakota the night of the llth. In the east, however, the snow continued to fall and the winter storm intensified into a blizzard as strong winds developed.	All	05 1800CST- 5 25 7 ? Heavy Snow 07 1200CST A series of slow moving upper level storm systems produced
	The snowfall combined with winds to 50 mph, and reduced visibil- lines to zero in many parts of eastern North Dakota. Elizzard conditions prevailed in the east most of the morning of the 12th. In addition, wind chill temperatures were down to 60 below zero. The storm subsided there late in the morning of the 12th.		heavy snow across most of the state. A large portion of the state had ten or more inches of snow with some areas receiving 16 to 18 inches. Strong winds caused drifting with some drifts up to 4 feet deep. Many roads were closed across the state, some for several days. The road closings also forced most schools to close for several days. Drifts of 2 and 3 feet collected on roofs which caused many to collapse while others
	The City of Fargo, northward to the town of Hillsboro, received the most snowfall, 12 to 14 inches. It was the heaviest snowfall for that area since January of 1982.		suffered damage. Damage to collapsed buildings, roofs, and carports is estimated at \$5 million. The cost of snow removal is estimated at over \$10 million. Many automobile accidents occurred but fortunately most were without injury, however 3
	For parts of northwest and north-central North Dakota, including the City of Minot, it was the first measurable snowfall since the Winter of 1986-87.		persons were killed and 25 injured. A 40 year old man who had been drinking with a friend froze to death within steps of his house. A 76 year old man died while shoveling snow. COLD MAOO.

PLACE	TIME - LOCAL STANDARD LENGTH OF PATH (MILLES) WIDTH OF PATH (TAROS) WILLES WROPERTY RILLED PROPERTY RILLED OCTOBER OF STANDARD CROPS	DATE LENGTH OF PATH (TARDS) LENGTH OF PATH (TARDS) WILLED RILLED RILLED RILLED ROPERTY CROPS CRO
35 OREGON		36 PENNSYLVANIA, Western
ORZ-004 Willamette Valley	03 2000 pst 0 ? ? 0 Freezing Rain 04 1000 pst Weak cold front overran cold air trapped in the valley depositing light freezing rain. numerous traffic accidents	PAZ001-002 Lakeshore and Northwest Pa. Seven inches fell along the lake shore and twelve inches inland from lake-effect snow. PAZ002 06 1400EST 0 0 0 0 Heavy Snow
Western Oregon	and several power outages. 10 0400 pst 0 svrl 5 0 winter storm-snow freezing rain high wind A cold front moved across western oregon early on the 10th. a low pressure centered deepened rapidly behind the front within 300 miles west of Astoria. It moved onshore near Astoria about midnight. 24 hour snowfall amounts ranged from 1 to 2 ft or tore in the cascade and siskiyou mins. Freezing rain caused accidents in the Columbia Gorge. Very high winds hit the coast and Willamette Valley with considerble wind damage and power outages to well over 100,000 people. Railroad cars were blown off the tracks near Albany. Wind gusts reached 97 mph at Netarts on the north coast with numerous readings between 70 and 80 mph. Salem had a peak gustof 60 mph.	Northwest Pa. Somerset Co. Middle Creek Township, 9 % Somerset West Salisbury, 18 S Somerset S Somerset Mest Salisbury, 18 S Somerset PAZ005-006-013-014 Laurel, North and South Central Mountain Up to six inches fell in the South Central Mountains with up to nine inches in the Laurel Mountains.
Oregon Coast ORZ-001-002-003	13 2000pst 0 ? 5 0 High Wind-Coastal 14 0800pst stream flood Low pressure deepened off Vancouver island rapidly with a strong N-S pressure gradient along the Oregon coast. Heavy rains caused minor flooding on several coastal streams. Considerable high wind damage, roofs blown off and tree uproctings. Wind gusts to 75 mph at Lincoln City and Port Orford and peak gust of 71 mph at Astoria.	37 RHODE ISLAND RIZALL, Statewide 08- Afternoon and eve. 0 0 0 Heavy snow 09 Morning A coastal storm brought heavy snow to the state with accumulations of 6 to 10 inches. Schools and businesses closed early and commuters left work early as traveling conditions worsened during the storm.
36 PENNSYLVA PAZ012 PAZ009 The Seutheast Zeme and Lewer Susquehanna Valley	NIA, Egstern 08 0700 EST	38 SOUTH CAROLINA Lancaster County 03 0700EST 0 0 5 0 Glaze Claze resulting from freezing rain caused considerable limb breakage, and disrupted power to about 6,000 homes. Additionally, there was a large number of ice-related traffic accidents. 7-11 0 0 6 0 Snow, Sleet Freezing rain An area of low pressure developed over the Mississispip Delta
PAZOO9 PAZO12 PAZO12 PAZO11 PAZO16 PAZO08-010 All of Eastern Pennsylvania except The Upper Susquehana Area	26 0830 EST O 0 4 6 Flash Floed 20 1300 EST O 0 4 6 Flash Floed 20 1300 EST Several days of above freezing temperatures and heavy rain in the early serming heurs of the 20th caused the break up of ice on seme streams and the damming of ice against bridges, this resulted in minor flooding and closing of some roads. The Concetega River at Hinkletown, the Peques Creek at Revere Tavern, The Peques Creek at Herrville and The Hill Creek at Reute 234 were some of the spots that flooded. One automobile ended up in a stream, but it was not clear if it was washed into the stream or driver in, By 1 PH the ice damming had decreased enough that streams retreated below flood level. 25 1600 EST 0 0 4 0 Heavy Snew 25 1900 EST 0 0 4 0 Heavy Snew 25 2000 EST 0 0 4 0 Heavy Snew 25 2000 EST 0 0 4 0 Heavy Snew 25 2000 EST 0 0 4 0 Heavy Snew 25 2000 EST 0 0 4 0 Heavy Snew 25 2000 EST 0 0 4 0 Heavy Snew 25 2000 EST 0 0 4 0 Heavy Snew 25 2000 EST 0 0 4 0 Heavy Snew	region and moved eastward across Georgia and Florida. This system resulted in the heaviest snowfall since 1930 for northwestern and northern South Carolina; and sleet or freezing rain over the remainder of the State. An unofficial snowfall of 27 inches was reported in the Bad Creek area of Geonee County. Caesars Head measured drifts up to 40 inches. There were several official snow depths of 18 inches reported in the foothills and mountains. The snow turned to sleet in the midlands, where 4.3 inches fell at Columbia. The southern portions of the state experienced freezing rain with accumulations of 1/2 to an inch ice on the south coast. Traffic was slowed by icy roads for several days over much of the state. Numerous ice-related accidents occurred, resulting in damage, injuries and some fatalities. There was considerable limb breakage and power failure in the area of freezing rain near the coast. The heavy snowfall disrupted many activities over the state for several days, with schools closed in northwestern South Carolina for a week or more. The snow and ice cover reasined for an unusually long time, with ice on the ground in Central South Carolina through the 18th and at some locations in Northwest South Carolina to the 23rd. The cost of snow removal, disruption of the economy and mitigation activities were very large.
	Sasw spread from south to north over Eastern Pennsylvania during the late serming and afteracon heure, Altheugh there was some additional light new, the significant smoothall ended by 5 PM ever the south pertion of Eastern Pennsylvania and by 1 AM on the 26th over the Northeast. The smoot accumulation had reached 4 inches or more the Northeast. The smoot accumulation had reached 4 inches or more to 12 inches. The Seuthenst had 4 or more inches by 7 PM with final amounts of 2 to 8 inches and as much as 12 inches over the far west pertion. The East-Central Zenc had 6 or more inches by 9 PM and final amounts of 10 to 16 inches. The Piddle Susquehanna and Northeast Metropolitan Areas had 6 inches or more by 10 PM and final amounts of 6 to 10 inches. The far north sections of the Middle Susquehanna Zene had 4 to 6 inches of accumulation. The Upper Susquehanna Zene had 4 to 6 inches of accumulation. The Upper Susquehanna Zene had 4 to 6 inches of accumulation. The Upper Susquehanna Zene had 4 to 6 inches of accumulation. The Upper Susquehanna Zene had 4 to 6 inches of accumulation with as such as 5 inches in the far enstern sections. The heavy wet smoo brought down many tree limbs and utility lines. 100,000 or more customers had power interruptions, with some lasting into Tuesday the 26th. Slippery readways resulted in sany automobile accidents which resulted in one death and at least 40 injuries. There were also two deaths from heart attacks while sheveling snov.	Darlington County, Darlington A Male, age 67, died of hypothermia while sleeping in an unheated house. M67P Northeast SC SC005,007,008,006 Northeast SC SC005,007,008,006 An offshore storm dumped up to four inches of snow over portions of Horry County, with lesser amounts inland over the northeast and eastern part of the State. The western edge of anowfall was along a line from Marlboro, Florence, Clarendon, to Dorchester Counties. Coastal Waters SCZ 007,008 The unusually cold weather during January lowered water temperatures in the shripp beds along the South Carolina coast causing a heavy kill of white shrimp. Previous heavy kills were in 1977, 1978, 1981, 1984, and 1985.

			,											_				JANUARY 198
	LOCAL	F PATH	PATH (S)	NO. O		ESTIMAT DAMAG		CHARACTER			LOCAL	F PATH	PATH S)	NO. PERS		STIMA DAMA		CHARACTER
PLACE	DATE TIME - LOCAL STANDARD	LENGTH OF (MILES)	WIDTH OF PATH (YARDS)	KILLED	INJURED	PROPERTY	CROPS	OF STORM	PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF (MILES)	WIDTH OF PATH (YARDS)	KILLED	INJURED	PROPERTY	CROPS	OF STORM
39 SOUTH DAK	ОТА								40 TENNESSEE									
Todd County, Rosebud	12 1430 MST	ſ		1 0	Ç	Ø Ø		Cold	TNZALL		0600CST 2300CST			0	0 0	0	0 1	finter Storm
SDZ001-002-003- 006 Northwest South Dakota	A man died o Reservation. 11- 2200 to 12 1300 MST	. M?O		20 B	Q	ð 2		Blizzard	į	broug colde airli snowf homel	ht from ! r tempera nes and r all was i ess perso	to 12 atures made ro- the deep on died	inches caused : ads sli pest in due to	of sn the cl ck cau the N expos	ow stat osing o sing no ashvill ure whe	tewid of sc umero le are	e. Th hools, us acc ea in fell	Southwest and the snow and businesses, cidents. The 20 years. One asleep in a peling snow.
	Snow and blo in many area the area and	as. T	wo to	six in	nches	s of s			Haywood County, 4NE Brownsville	19	1130CST	3.0	60	1	6	5	0	Tornado (F2)
SDZ003-004-005- 010-011-012-015- 016-017-018-019- 020 Eastern South	12 0500 to 13 0 0 CST			Ø Ø	. (a ø		Blizzard	Fayette County, 2W Moscow to 2SW Mt. Moriah Gibson County, 1E Humbolt to	19	1152CST		200 60	3		6		Tornado (F3) Tornado (F2)
Dakota	Reew and str		inde c	ombi ne	ad to	n produ	uce.	blizzand	2SE Gibson Carroll County,	19	1305CST	1.5	30	0	0	4	0	Tornado (F1)
	Snow and str conditions a visibilities Winds gusted a gust of 54 five inches Many roads w occurred cau	across were ton mph of so	easte commo ear 40 was re ow fel losed	ern Sou on acro omph i ecordeo .l in s and nu	uth I oss m in ma d at sputh umero	Dakota most o any lo Aberd measte	. N f th cati een. rn 9	Wear zero he area. ions and . One to Gouth Dakota.	Rico	Torn the 4 mi 1130 dest six a to	adoes his day as a les north CST. It royed two people we rnado tou	four cold fineast of travel on housester injuries	ront app f Browns ed nors s and da ared, all own near	proach sville theast amaged ll in r Mosc	ed. A in Hay to Cob a thir the sam ow at 1	torna wood obs Cr rd. (ne hou 1152C	ee in ado to Count rossin One ma use. ST and	the early part of uched down y at Allen at g where it n was killed and In Fayette County, traveled north- ed 33 houses and
SDZ011-012-015- 016-017-018-019- 020 South-Central and Southeast South Dakota	18- 2200 to 20 0300 CST			2 2	Q			Winter Storm		mobil and torm stat Hame 3 ho The	le homes, one woman ado touch ion. It lton Hill rses, the storm con	, 12 of n were in ned down travel l Road v en total ntinued	which willed. at 11: ed norm where in lly desi	were in G. 58CST, theast t did it troyed ast ac	n the Wilson C causin across heavy d a mobi ross op	Villia County ng may s farm lamage lle he pen co	ston a y near jor da m land e to a ome wi ountry	rea where 2 men Humbolt, a mage to a power snd woods to barn, injuring th tie-downs. to Luckey Road
	snow reduced	south I visi Inter rom 1 he 20 mber1 late	east S biliti state ate af th. I ain wa	Bouth I es to 29 fro ternoc interst is clos ig of t	Dakot near on Si on or tate sed f the 2	ta. Since zero ioux F. the 190 from to 120th.	now in alls 19th om S he a The	and blowing some to Watertown to late Bloux Afternoon of	- TNZ012-013-014-015	was 19 A ma addi	inside. 0930CST 1500CST jor storm	Torna system ornadoe	edo F471 n west c	0 of the heavy	F68M M O state y rain	? cause	M43M ? ed vet ed wid	ng the woman that Flash Flood y heavy rain in espread flash ng many roads
	Tripp Yankton Pickstown an Tyndall Wagner, Winn Bioux Falls Avon			te			20 18 16 15 12 10	3 5 2	TWZ912-013-014-015	20 Many floo		lest Ter	nnessee Chis per	0 major	0 tribut		s reac	Flood hed or exceeded y rains of
SD2006-008 Southwest South Dakota	23 0500 to 1400 MST	-		2 0	4	3 Ø		High Wind										
	Strong winds occurred in were reporte winds tore t	the R	apid C the Fo	ity ar rt Mea	rea. ade a	Gust:	s ne The	strong										
SDZ011-012-016- 017-018-019-020 Eastern South Dakota	23- 0800 to 24 1300 CST			1 2	Ø	9 2		ßlizzard	41 TEXAS, Nort	05-	1700CST- 0930CST			0	0	?	?	Winter Storm
	Falls to Ch the 24th to reduced vis snow. Nume	ter-m few amber early ibilitrous a ar La	ile in location lain w y morno ties a acciden ke Poid	many ons. as clo ing of nd are nts oc nsett	area Intersed the eas b curr afte	rstate from d 25th locked ed. f	inds = 90 the bec d fr d ma ving	gusted to from Sioux afternoon of ause of om drifting n died from his vehicle	031-032-033 North Central and Northeast Texas	A mof snow along over Louisin the	ajor win Freezing amounte 3 the Re Northe siana. Dallas C slick r	rain, d to b d River ast T Numero county a	sleet, etween from w exas f us acci lone), or othe	and two are rest of rom education dents with earr store	snow. nd thre Wichi east o result eight d	Acc e inc ta Fa f Da ed fr leaths meter	cumula thes o thes t these the	s with a coating tions of ice and wer the counties to Texarkana, and to Shreveport, e icy roads (200 ed indirectly on allas-Fort Worth
SDZ006-008 Southwest South Dakota	24 1100 to 1600 MST High winds 24th. A wi City.	DCCUF	ed in			City	are			cance early Precent North Wide: Rusk Counthen house weigh	elled. y or ipitation n centr neast Te spread W , Panola t ies, wh toppled es in C nt of t estimated	School did n fell al cc xas fr ednesda , Nacc ere fr over amp, U he ice 1.75 morning	s and of op mostly unties, eezing y nigh gdoches eezing onto po pshur, caused of the	busines oen as as s but rain v at (th s, She rain Titus around on chice	esses a t all sleet a in the vas the he 6th collections. t collections.	ll ov Wedn nd sn he s rule) ove San cted Also Woo ouses Whil	ver No nesday now ov southe ner And Augus on p hard od Co s to c Le pre	er 600 flights trth Texas closed and Thursday. er the north and rn portions of wer outages were erson, Cherokee, tine, and Sabine ine trees, which hit were poultry unties, when the bllapse, killing cipitation ended lippery in spots

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PLACE	DATE TIME - LOCAL STANDARD	LENGTH OF PATH (MILES)		NJURED SNOS	PROPERTY PWYO		CHARACTER OF STORM	PLACE	Į Į	TIME - LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	KILLED		PROPERTY WWW C		CHARACTER OF STORM
	DATE TIME STAN	وَّ	KIEL K	Z.	8	8			DATE	TIV STA	Ä	.Q ≱	KILI	IN.	88	8	
TEXAS, I	Northern							TEXAS, 1	West	ern							
Henderson County: Cedar Creek Res South	18 2247CST	. 6.11	0	0	i		Hail (0.75)	Culberson County		1900CST	1	4 - 3 -	0	0	0		igh Wind (63)
Kaufman County: Mabank	Dime size hai 18 2300CST A twelve foo fell.		0	0	?	?	TSTM Wind and Hail (0.75)		whis gust seve	tled thro ing to 63	ugh Gua knots , but r	dalupe impeded o damag	Pass. trave e or i	A st 1 thr njuri	eady e ough t es wer	ast wi he mou e repo	ntain pass for rted due to
Van Zandt County: Canton 1 NW Grand Saline	18 2320CST 18 2350CST Golf ball s:	hail co				? at 2 le no	Hail (1.75) Hail (1.00) 320CST. Dime to rthwest of Grand Hail (1.00)	42 UTAH UTZ003 Wasatch Front		2140MST	of sno	w fell	O nt Too	O ele di	l uring t		Heavy Snow y and early
6 N Quitman			e of qua	rters,	cover		e ground 6 miles		even	ing hours	. The	Snow w	as a c	ontrib	outing	facto	
Franklin County: Mount Vernon	19 0020CST	e cedar	0 trees wer	0 e blown	? n down		TSTM Wind and Hail (0.75) ount Vernon while	UT2003-004-005- 006-007-008 Wesatch Front, Uinta Basin, East Carbon County, Sevier Valley, Southeast and Southwest Valleys	few incl inch	specific uded 4 to	report 6 inc ce, 6	s of ove hes in i	ernight Salt L	tamou ake Ci	ints as ity, 4	eys a of 4 inche	Heavy Show Pross Utah. A 130 a.m. a at Vernal, 5 t San Pete, and
41 TEXAS, Sout	hern ———	N	ONE REPORTI	ED				UTZ003 UTZ010 Wasatch Front Northern Mountains								0 sat H	Heavy Snow Heavy Snow ill AFB and 6
41 TEXAS, West	ern									rt, and 8						he Sn	owbird ski
Panhandle South Plains	5-8 A massive wint freezing drizz The freezing drizz The freezing d continued into and other exposores of trafremarkably, no Heavy snow, maccumulated to Among the heav	le follo rizzle, early (serious fic acc: serious st of wh as much ier tota Perryto Borger Pampa - Dumas -	which bega which bega on the 6th, ects. The idents and s injuries. nich fell on as 9 inch	n on the self-th on t	wfall: he more tened re ondition rian morning	f Wess to the ning and no adway ns rei ishap	of the 5th and ys, walkways, sulted in s; but, the 6th,	UTZ010 UTZ001 UTZ002 UTZ002 UTZ003 UTZ003 UTZ003 UTZ010 Cache Valley, Great Sait Lake Besert, Wasatch Front and Northern Mountains	Mondshif mount Intereso At t in S A per 2 in accumulate blow I-15 coll	ted to not tain ridg rnational rt 90 mph he Salt I pringvill riod of h ches per mulated a Alta skiring snow just sou ision in	g. As arthwes etops airpo and a ake Air e, the eavy schour follong tresort and al	the from and and and are recommended, winds on the Wasar reported ick road point of the road point of	ont passed in Tribute a single content of the left the le	to as the C gust rentor rplane damag the st ocatio ont du new in e blar	various high a cache to 59 a report to 59 a report to 50 a report	0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	tions, winds mph over the mph over the mph over the the Snowbird ski gust to 77 mph. n together, and ouse trailers. and as much as to 6 inches raing hours, and 2:30 ps. MST. car pileup on atal head on
	The winter sto the Panhandle the 5th, freez so seriously t hazardous. Mo Lubbock during those mishaps resulted from	elso affing drize that drive than the more than the more than the acciust had been been the acciust had been the acciust light light paducah spur	brought se ected the zle slicke ring and wa 60 motor v ming rush ag school b dents.	rious South I ned roo lking I ehicle hour ou uses. the Pa totals nches nches	Plains, adways became wrecks n the 5 No ser	Iments On and w extre were th, w	Drizzle ieavy Snowfall s to travel in the morning of valkways alike mely e reported in vith three of	UTZ010 Northern Mounteins UTZ010-003-005 UTZ011 Wasstch Front, East Carbon County, and Mounteins	Stromount to 6 reso	tain loca 6 mph, 85 rt. 0415MST 1430MST cific col y snow. nches of ing. Pri same time	d from The Utnew sn ce had	The Lowbird's t moved ah Depar ow had s receive	ogan Pos Hidde O O O O O O O O O O O O O O O O O O O	eak wien Per O O Northmof Tr lated ew incoello	l l l l l l l l l l l l l l l l l l l	0 0 0 0 0 0 0 0 0 0	Bigh Wind (G74) the in scame showed a gust showed a gust show the ski deavy Snow deavy Snow deavy Snow deavy Snow deave showed a reported that Summit by early now inches by ted a storm deavy Snow deavy Snow deavy Snow deavy Snow deave show d
Permian Basin	5-6 The effect of Basin, particular Midland-Odessa late evening of reported a toperiod, resultatality occur: Spring) when ti Monahans, alticular under the cereived serior	larly wi area, the 5t Public S al of 41 ing in o red on I ne vehic off the the veh	th respect Freezing d h through afety and motor veh ne fatalit nterstate le driven icy roadw icle while	to drizzle the 6th local 1 icle wi y and 6 20 (4.3 by Sand ay and	iving i fell m h, glaz law enf recks d eight i 3 miles dra Sim overtu hree sm	is to in the sost or ing r forcem during injuri west west is Wad	of the day from toadways. The tent agencies; the two-day es. The of Big le, 27, of Ms. Wade was	UTZ005-008-011 UTZ006-008-011 Bast Carbon County Southwest Valleys, Southeast Valleys, and Mountains	The Utah in t the vall east an a River inch from acculate	O620MST Pacific s on the 1 he southe early mor eys and 1 ern secti dditional or, and 10 es of new Kanab in mulated t	7th, dern parming he ons of 4 ince to 12 snow dicates here.	eveloped t of the purs 4 to 2 inches the sta hes in inches had fall i that a By the	onet had further state of in the Print care in the print in the state of in the state of the sta	od movemer are on the ches months ice are the (10 ince the stine are the stine are the stine are the are the stine are the are	nd proof the Mon of and untains tah hig rea, 4 ale. I Cedar (ches of torm mose eas had	o north	deavy Snow deevy Snow there parts of the some snow the 18th. By fallen in the puthern and patrol reported in Green and sunrise, 8 rea and a report snow had ast of the state ived two feet of

	,														JANUARY 19
PLACE	DATE TIME - LOCAL STANDARD	LENGTH OF PATH (MILES) WIDTH OF PATH	(YARDS)		MATED! AMAGE	CHARACTER OF STORM	PLACE	DATE	TIME - LOCAL STANDARD	LENGTH OF PATH (MILES)	WIDTH OF PATH (YARDS)	NO. OF PERSON	S DAN	CROPS PAGE	CHARACTER OF STORM
UTAH	.Lk	-						IGTO	N	<u>.</u>		.11			
UTZ010	21 1100MST		0	0 l	0	Righ Wind	Western Washington					0 0	5	0 н	igh Wind
Northern Mountains	A peak wind				recorde	dagust of 102		An a	rea of	low pr	essure	formed	off o	f the	mouth of the
UTZ010	mph during to			o 1	0	High Wind		ward into	during mainla	the e	vening tish C	g over W Columbia	estern . Pea	Washi k gust	ngton and s around the
Northern Mountains	A second gus Ridden Peak					corded at		Harb	or in t	he San	Juan	Islands	, 65 m	ph at	at Friday the Evergreen t. Strong
	nidden reax	men a 102	mpn gust o	ccurred.				wind Brid	s force ge for	d the about	closur 90 mir	re of th	e Hood Near B	Canal remert	Floating on, a mudslide
								sect	ion of theavy r	hillsi ain.	de col Fallin	llapsed ng trees	becaus damag	e of s	e when a trong wind ses in Ocean
43 VERMONT -		NON	IE REPORTED					Coun	ty. Po	wer ou	tages	were wi	despre	ad wit	South Snohomis h some parts ctricity to
								be r	estored			,			
44 VIRGINIA															
VAZ015-016 VAZ008-009-013	7 0530EST		0	0 3	-	Winter Storm	46 WEST VIRGI	NIA:			NONE RI	EPORTED			
-014 /AZ006-007-010 -012-018	7 0900EST		-	0 3		Winter Storm Winter Storm									
VA2001-002-003 -004-017 VA2005-011	7 1700EST 7 1820EST			0 4 0 3		Winter Storm Winter Storm									
772003 011	Snow be	gan in sc	outhweste	rn Virg	ginia e	arly	47 WISCONSIN								
	the Was	7, sprea hington s ith and/o	suburbs b	y 1800E	est. Th	e snow	WIZ001-002-003-004-		Evening Early Af			0 0	0	0 H	leavy Snow
	along to	he coasta y midday inches i	al section on the 8	th. Tot	e preci tals re	pitation ached	Northwest and North Central Wisconsin		_						
	(zones southwe	6, 17 and st foothi	l western ills (eas	part o	of 4), arts of	and the zones		North	n-Central	Wiscor	sin. Po	w fell ac oplar (Do a foot w	uglas Co	ounty)	anđ
	and 9).	15 and we Elsewher except 3	e snowfa	ll aver	raged 5	to 8		Count	ss portic ty) recei	ns of I ved 11	ayfield inches	d county. . Winds o	Minong f 30 to	(Washbu 40 πph	
			,					schoo	ols and b	usiness	es in A	rcing the Ashland, nburn cou	Barron,	Burnett	
VAZ011-012 VAZ005-010	25 1200EST 25 1700EST		0	0 3	. 0	Winter Storm Winter Storm			rtion of Ling snow			2 was clo ibility.	sed beca	use of	the .
		gan in th					WIZ001-002-003-004- 005-006-007-008-009-		Mid Morn Late Mor		0	0 0	5	0 H	leavy Snow
	Washing 5 to 8	ton subur inches ea	bs. Amou	nts ave e mount	eraged tains a	nd	010-011-012-013-014- 015 All but Southeast								
	8 60 12	inches i	n the mo	uncains	5.		Wisconsin					d from 6 ast Wisco			
								Oshko as w	osh (Winn	ebago (rtions	ounty) of Kewa	reported aunee, Ad	12 inch ams and	mes of s Richlar	snow nd
								inche	es fell w ty) and i	ith a f n parts	oot not of Saw	consin a ted at Sa Wyer coun	rona (Wa ty. In t	ishburn :he Lake	
								reac	ned from	Mellen	to Drum	12 inch mond in parent h	Ashland	county.	
45 WASHINGTO								shove near	eling the	snow.	The hea	avy snow numerous	collapse	ed a bar	
Clark county	10 2340PST As a Pacifi		-	0 4 inter mo		High Wind rectly over	WIZ001-002	24	Evening			0 0	0	0 H	leavy Snow
	the state, miles an ho	strong pr ur (mph)	essure g develope	radient d. Tre	t winds ees fal	up to 60 ling on	Lake Superior Snow- belt Region Northwest Wisconsin	25	Early Af	ternoor					
	near Vancou a barn roof	ver, Wa. was blow	was hit : n off by	bv a fa the st	alling trong w	. One house tree. Also, inds and a		gener	rated hea	vy lake	snow i	waters of in the La n. Snow a	ke Super	rior sno	
South Washington	lean-to att	ached to	the barn	was de	estroye	d. High Wind		inche and 2	es were r Ashland c	eported ounties	over N	Worthern Mellen (Douglas,	Bayfie	eld.
Coast, Skagit County, Eastern King County	14 0600PST		0	o o	0	Heavy Snow	WIZ011-012-013-015-	-	ing up 20 Early Mc			ow	0	0 F	łeavy Snow
aring country	During the over Wester in the lowl	n Washing ands expe	ton from	the so	outhwes winds	t. Areas along with	016-019 Southcentral and Eastcentral Wisconsin		Evening		-	•	J	- 1	.,
	of snow at	Snoqualmi	e Pass c	losed I	Interst	o 22 inches ate 90 for ontrol work.	Lastcentral Wisconsin	A bar	outhcentr	al and	Eastcer	5 inches ntral Wis	consin.	The sno	OM .
	On the Wash the Long Be	ington co ach penin	ast, peal sula and	k gusts 70 mph	were	80 mph on ean Shores.		as s	trong win	ds caus	ed whit	ate90-94 te-out co 4 foot dr	nditions	and	43
	In Enumclaw were damage	, 40 mile d by High	s SE of a	Seattle	e, two Mount V	ernon, trees		accid early	dents too 7. In Man	k place itowoc,	School (Manit	ols and b towooc Cou	usinesse nty) 12	s close to 15	ed
	adjacent to blown onto	a recent	clear-c	utting	operat	ion were			es of sno sited acr			foot of county.	snow wa	ıs	
	1														

PLACE	TIME - LOCAL STANDARD LENGTH OF PATH (TAROS) WINDER OF PATH (TAROS)	DATE TIME - LOCAL STANDARD LENGTHOF PATH (MLES) WIDTH OF PATH (MRES) CROPS CRO
48 WYOMING		WYOMING
WYZ013 SOUTHWEST	5 0200 TO 0 0 0 0 SNOW 0800MST	KITES PULLING WHICHEVER MAY THE WIND WAS BLOWING." ONE MAN WAS INJURED ON I-80 WHEN TWO TRACTOR TRAILERS COLLIDED.
WYZO16 LARAMIE VALLEY	FOUR TO FIVE INCHES OF NEW SNOW FELL AT KEMMERER. 5 0100 TO 0 0 0 HEAVY 1000MST SNOW	WYZ004
	A STORM MOVED THROUGH SOUTH CENTRAL WYOMING AND DEPOSITED	SIX INCHES OF NEW SNOW FELL AT BURGRESS JUNCTION IN THE BIG HORN HOUNTAINS.
	BETWEEN 5 TO 8 INCHES OF NEW SNOW FROM SARATOGA TO SYBILLE RESEARCH UNITNORTHEAST OF LARAMIE.	WYZOO2
WYZOC1-007 NORTHWEST AND WESTERN MOUNTAINS	8 0400 TO 0 0 0 HEAVY 9 1400MST SNOW	WYZ011-05E L4 0400 TO 0 0 ? 0 HIGH CENTRAL PLAINS SOUTHEAST WY
	A STRONG MOIST WESTERLY FLOW DROPPED BETWEEN 9 TO 20 INCHES OF NEW SNOW FROM AFTON NORTH TO YELLOWSTONE NATIONAL PARK. TETON SKI RESORT REPORTED 20 INCHES	CARBON CO. 14 0400 TO 0 0 0 HIGH 1700MST WIND STRONG UPPER LEVEL WESTERLY WINDS MIXED DOWN TO
WYZOO1 NORTHWEST MOUNTAINS	OF NEW SNOW ABOVE THE 9000 FOOT LEVEL. 9 1800 TO 0 0 0 HEAVY 10 0700MST SNOW	THE SURFACE AROUND 0500 MST AND GUSTED TO 60 MPH AT CODY AIRPORT. VERY STRONG WINDS OF 35 TO 45 MPH MITH GUSTS OF 51 TO 82 MPH WERE CLOCKED OVER THE CENTRAL PLAINS AND SOUTHARST WYOHING. AIR FORCE PERSONNEL ABOUT 25 TO 30 MILES NORTH OF CHEYENNE
WYZOO9 WIND RIVER MOUNTAINS	10 0000 TO 0 0 0 HIGH WIND	REPORTED WIND GUSTS OF 82 MPH. ALSOMUDDY GAP IN MORTHERN CARBON COUNTY LOGGED SUSTAINED WINDS OF 45 MPH WITH GUSTS OF 67 MPH. OVER 25 AUTO ACCIDENTS OCCURRED WITH THE WINDS AND ASSOCIATED AREAS OF BLOWING AND DRIFTING SNOW. VISIBILITIES WERE
WYZ015-016~ 017 SOUTHEAST CORNER	10 0000 TO 0 0 0 HIGH 1800MST WIND	FREQUENTLY BELOW ONE MILE IN THE BLOWING AND DRIFTING SNOW. A SMALL PLANE WAS ROLLED OVER AT THE NATRONA COUNTY AIRPORT WEST OF CASPER DUE TO THE HIGH WINDS. THE PILOT WAS NOT INJURED.
	10 0000 TO 0 0 0 0 HIGH WIND	WYZ001-002
	STRONG. MOIST WESTERLY PLOW CONTINUED TO PREVAIL OVER WYOMING. FOUR TO TWELVE INCHES OF NEW SHOW MAS DEPOSITED OVER FAR WEST FROM AFTON NORTH TO YELLOWSTONE NATIONAL PARK. ALSOSUSTAINED WINDS OF 40 TO 55 MPH WITH GUSTS OF 60 TO 75 MPH BLEW FROM SOUTH PASS SOUTHEAST TO CHEVENNE. THE STRONGEST MINDS WERE CLOCKED ABOUT 20 MILES SOUTH OF LANDER NEAR SOUTH PASS. THE HIGHMAY DEPARTMENT AT SOUTH PASS AROUND 0700 MST OBSERVED SUSTAINED MINDS OF 50 TO 60 MPH MITH GUSTS OF 75 MPH. INTERSTATE 80 FROM ROCK SPRINGS TO CHEVENNEW MS CLOSED FOR PERIODS OF TIME DUE TO BLOWING AND DRIFTING SNOW. VISIBILITIES WERE FREQUENTLY BELOW ONE MILE IN THE BLOWING AND DRIFTING SNOW.	NOBTHWEST CHINOOK
WYZOW WEST WYOMING	10 1800 TO 0 0 0 0 HEAVY 11 1500MST SNOW	PLAINS WYZ011-OSE 15 1830 TO 0 0 ? 0 HIGH CENTRAL PLAINS 16 0800MST . WIND
TETON CO. TETON VILLAGE	11 0500MST 0 0 ? 0 HIGH WIND	AND SOUTHEAST WY AN INTERSE UPPER LEVEL WESTERLY FLOW COMBINED MITH THE
WYZ008-009- 010 GREEN RIVER BASIN TO WIND RIVER MTNS AND BASIN	11 0525MST 0 0 0 0 WIND	AN INTERSE UPTR LEVEL WESTERLY FLOW CORBINED WITH THE TOPOGRAPHY TO PRODUCE ARRAS OF HEAVY SROW AND HIGH WIND CONDITIONS. SNOWFALL TOTALS OF 8 TO 14 INCHES WERE DEPOSITED OVER THE NORTHWEST FROM ALTA TO THE OREGON BASIN. SNOWFALL TOTALS OF 3 TO 5 INCHES WERE COMMON FROM THE CENTRAL PLAINS TO THE SOOTHEAST PLAINS FROM THE AFTERNOON OF THE 15 TO THE MORNING OF THE 16. HIGHER SNOWFALL TOTALS OF 10 TO 12 INCHES WERE REPORTED AT
WYZ006 NORTHEAST PLAINS	11 0700MST 0 0 0 0 WIND	CURT COWDY STATE PARK IN THE LARAMIE MOUNTAINS WEST OF CHEYENNE. THIS INTENSE WESTERLY FLOW MIXED DOWN TO THE SURFACE AND ACCELERATED WINDS TO 35 TO 45 MPH WITH GUSTS FROM 55 TO 60 MPH ACROSS CENTRAL AND SOUTHEAST WYOMING.
WYZOSE SOUTHEAST WY	11 0800 TO 0 1 ? 0 HIGH 1700MST WIND	GUSTY WINDS CAUSED BLOWING SROW AND ICY ROADS BETWEEN RAWLINS AND LARAMIE. NUMEROUS VEHICLES SLID OFF ROADWAYS ALONG WITH JACK-ENIFED SEMI-TRACTOR TRAILERS.
CARBON CO.	11 0800 TO 0 0 ? 0 HIGH 1700MST WIND	WYZ010-011
	A COLD FRONT BLITZED INTO FAR WEET WYOMING AND PRODUCED THUNDERSFORMS AND BIGHT TO TWENTY INCHES OF NEW SNOW FROM KEMMERER NORTH TO YELLOWSTONE NATIONAL PARK. AROUND 0500 MST WIND GUSTS OF 115 MPH WERE RECORDED AT THE TOP OF RENDEZVOUS PEAK AT THE TETON VILLAGE SKI RESORT. WIND GUSTS OF 50 TO 55 MPH RAKED ACROSS THE GREEN RIVER TO WIND RIVER BASIN AROUND 0530 MST. THESE STRONG WINDS CAUSED SHORT FOWER OUTAGES AT BIG PINEY AND PINEDALE DURING THE MORNING OF THE 11. ALSO. WIND GUSTS TO 55 MPH MERE NOTED IN THE GILLETTE AREA AROUND 0700 MST. AS THIS COLD FRONT MOVED THROUGH SOUTHEAST WYOMING AND CARREON COUNTY SUSTAINED WINDS OF 35 TO 45 MPH WHITH GUSTS	A WINTER STORM BLANKETED CENTRAL THROUGH SOUTHEAST WYOMING WITH 5 TO 12 INCHES OF NEW SHOW. THE MOST NOTICABLE SHOWHALL OCCURRED WEST OF CHEVENNE IN THE LARANIE MOUNTAINS WITH 10 TO 12 INCHES. NEAR ALBIN AND PINE BLUFFS 7 TO 10 INCHES WERE COMMON. WINDS 20 TO 35 MPH WIPED THE SHOW INTO WIDSSPREAD DRIFTS 4 TO 8 FERT TALL FROM CASPER SOUTHEAST TO PINE BLUFFS. NUMBEROUS ROADS WERE CLOSED FOR A TIME ALL ACROSS SOUTHEAST WYOMING.
	DF 55 TO AROUND 70 MPH WERE LOGGED. ONE PEAK WIND GUST DVER THE SOUTHEAST PART OF CASPER REACHED 68 MPH AT 1000 MST WITH 71 MPH AT RAWLINS AIRPORT AT 1300 MST. DURING PHESE HIGH WINDS SEVERAL TRACTOR TRAILER TRUCKS WERE KNOCKED DOWN BETWERN WAMSUTTER TO LARMIE ALONG I-80.	WYZ011 20 0600 TO 0 0 0 SNOW CENTRAL 21 0600MST PLAINS
	TRUCK DRIVERS ALONG THE INTERSTATE COMPLAINED THE STRONG WINDS WERE TREATING THEIR SEMI-TRACTOR TRAILERS "LIKE	SIX INCHES OF NEW SNOW WAS DEPOSITED AT BATES CREEK ABOUT 20 MILES SOUTH OF CASPER AIRPORT.

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PLACE		LOCA	I OF PATH	PATH DS)	PER	SONS		AGE	CHARACTER OF	PLACE		LOCA	OF PATH	PATH	PERS	ONS	DAM	AGE	CHARACTER
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WYOMII	NG									49 ALASKA, No	orthe	rn —		- NO REF	ORT RE	CEIV	ÉD	•-	
	21 22	0600 TO 0600MST			0	0	0	0	HRAVY SNOW										
	22	1000 TO 1800MST			0	0	0	0	HIGH WIND	49 ALASKA, So									ligh Wind
WYZ002		1000 TO 0300MST			0	0	3	0	HIGH WIND	ALASKA PENINSULA		1600AST ong weat	her fr	ont caus	0 sed 63	nph.g	0 gusts a	-	
	12 THE: WIND POW	INCHES OF SE WINDS O GUSTS F	NEW ALSO ROM 6 HIGH	SNOW C MIXED O TO 7 WINDS	VER DOWN 5 MPI AT P	THE I TO T H AT	BIG H THE S CRYS L SNA	ORN MO URFACE TAL RE PPED A	G DEPOSITED UNTAINS. AND PRODUCED SERVOIR AND POWER POLE	49 ALASKA, So	outhe	astern			0	0	3	. 0	High Winds
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WYZ011-0SE CENTRAL PLAINS TO SOUTHEAST WY	23	0000 TO 1000MST			0	0	?	0	HIGH WIND			loose f							
WYZ015 SOUTHERN HOUNTAINS	23	0000 TO 2000MST			0	0	0	0	SNOW	50 HAWAII									
WYZOE .	TO SOU ARL AIR MIL CLO BLO BEL	45 MPH WITHEAST WY INGTON 65 AND SHERI FLOW HELI ES WEST (SED OVER	TH GU OMING MPH. DAN 7 ED TO F LAR SOUTH DRIFT	STS 5: . THE . CASI 1 MPH. DUMP AMIE 1 -CENTI	MOST PER ALS 5 NEAR RAL A	70 M NOT .70 O INCH CENT ND S VISI	PH FR ICABL MPH. THIS ES OF ENNIA OUTHE BILIT NOW.	OM NOF E WIND .CHEYE STRONG NEW S L. MOS AST WY	MINDS TO 30 ITTH-CENTRAL TO GUSTS WERE AT INNE58 MPH INORTHERLY INOW ABOUT 25 TF ROADS WERE COMING DUE TO TRE REDUCED HIGH	Maul	coun caus on w	y thunce eastern ty durin ed some	Kawai g the a flash f . Kains	with le fternoo looding all and	ng as sser a n and inclu flood	mount eveni ding ing e	as 10 s on 0 ng hou a wash	inches ahu an irs of out of	
WYZ004-006	24	0000 TO 0300MST			0	0	0	0	WIND Snow	51 PUERTO RIC	0 —			NONÉ RE	EPORTEC)			
·	TO IND OF 040 LAR ALS	PREVAIL OUCED STRO 55 TO ARC 0 TO 0600 GE MOBILE 0THESE	OVER EDING SUDING 70 MST HOME STRO	ASTERNATE REPACE OMPHONIAN ON JAN ON TO	WYO WIND PEA WARY TWO IDS T	MING S OF K WI 24 CAR	. THI 35 T ND GU FLIPP S IN THE R	S STRO O 45 M STS OF ED OVE THE GI OOF OF		52 VIRGIN ISLA	AND:	5		NONE RE	PORTEC ,)			
	HOU OF 063 100 WER CHE STR SNO 5 I WIN THE WYO DRI	SE 4 MILE WHEATLANI O MST ON E CLOCKEI YENNE ALC ONG UPPER W AT BURG NCHES OVE DS PRODUC SOUTHEAS MING DUE	S WES CLOC JANUA JANUA WITH ONG I- CLEVE GRESS GR THE CED SN TO ST NATIO	T OF G KED WI RY 24. RY 25 GUSTS 80 OVE L NORT JUNCTI BLACE OW DRI MEROUS RONG M	FILLE IND G FRO SUST. NEAS FHERL ON I HIL FTS ROA HINDS	TTE. USTS M 20 AINE R 58 UTHE V FL N TH LS N DS W AND HAD	A PO OF 7 00 MS D WIN MPH RN WY OW DU E BIG EAR S 4 TO ERE C THE	WER PLOMPH TON J DS OF FROM A OMING. MPED 1 HORN UNDANC 16 FOO LOSED ASSOCI	AMT NORTHEAST FROM 0200 TO ANUARY 24 TO 35 TO 45 MPH RILINGTON TO THIS VERY 0 INCHES OF MOUNTAINS AND EZ THESE STRONG TO JETH OVER OVER EAST ANTED SNOW STRANDED RANCH	53 PACIFIC Marshall Islands Marianas Islands	of X typh mirr bein stre howe dest peop dama From	oon Roy (ajuro on oon and ; or image; g Anne. I ngthenin, ver, near royed near le to see ge estima the Mars	Januar another i on the loy moves. There by Ebey arly on ek shell ites for shalls,	ry 7th. r exampl se Equat sed closs se was s se was h se third ter in r Ebeye hoy mo	Roy wa e of t or wit e to k ome da ard hi of th nearby were ved to	Mars s a r win t h the wajel mage t. Ei e oce chur place ward	relative ropical south ein on the gh wat anside thes a dat a the Ma	6 Islands rely ra rely rem he rem he rem he rem rem rem rem rem rem rem rem rem re	Typhoon Roy Typhoon Roy in the vicin: re January one developmentisphere one misphere one thand 9th while lein Army Base wave action forcing 2000 cole. Prelimir an S5 million. It passed al
NORTHWEST	30 A M						WITH		HEAVY SNOW FIC COLD FRONT THE ENTRANCE TO		sust smal cons \$2 only	ained wir l island iderable million minor da	of Rot damage to cro mage.	n estim a was w estima ps. Sai On the	ated a ithin ted at pan an island	t 125 these \$2.5 d Tin of G	mph n extre milli ian ra uam to	ear the me wing the control of the second co	th maximum e center. The ds and receive structures and north received outh of the tr extensive.
WYZ001-004	YEL 14 30		NATIO	NAL PA			DED T		HEST TOTAL WITH		Dama busi and Guam debr	ge to promesses \$10 to agricular for Rota	(vate) 3.8 mil ilture and in	omes we lion, t 31.5 mi juries	re est o gove llion. were c	imate rnzen Ther onsid	d at s t faci e were ered m	10.5 m lities no fa inor d	extensive. illion, to \$2.7 million, talities on ue to flying tward into the
		R TO SEVE						ross t	THE HIGHER										

LATE REPORTS

NONE

CORRECTIONS

NONE

STORM SUMMARY

	1	I	r —		Τ	 	r	ı		Γ	r			Т	1	1							·		JANU	ARY	198
TYPE	ALABAMA	ARIZONA	ARKANSAS	CALIFORNIA	COLORADO	CONNECTICUT	DELAWARE	FLORIDA	GEORGIA	ІРАНО	ILLINOIS	INDIANA	IOWA	KANSAS	KENTUCKY	LOUISIANA	MAINE	MARYLAND & DC	MASSACHUSETTS	MICHIGAN	MINNESOTA	MISSISSIPPI	MISSOURI	MONTANA	NEBRASKA	NEVADA	NEW HAMPSHIRE
TORNADOES						Ō					0						# #		0	0			0	-			##
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Deaths Injuries Property Damage Crop Damage																0 0 ? ?						0 0 ? 0					
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STORM SUMMARY

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TYPE	NEW JERSEY	NEW MEXICO	NEW YORK	NORTH CAROLINA	NORTH DAKOTA	ОНЮ	ОКГАНОМА	OREGON	PENNSYLVANIA	RHODE ISLAND	SOUTH CAROLINA	SOUTH DAKOTA	TENNESSEE	TEXAS	ОТАН	VERMONT	VIRGINIA	WASHINGTON	WEST VIRGINIA	WISCONSIN	WYOMING	ALASKA	HAWAII	PACIFIC	PUERTO RICO	VIRGIN ISLANDS	NATIONAL DEATH
TORNADOES							-		-	0						0			0			¥			0	0	
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HURRICANES AND TROPICAL STORMS																											
Deaths Injuries Property Damage Crop Damage										·														1 4 7 6			1 4
ALL OTHERS										•																	
Deaths Injuries Property Damage Crop Damage			1 2 ?		0 0 4 0	1 ? ? 0					1 0 5 0	1 0 0 0															7 9?

STORM DAMAGE CATAGORIES

2 3 4 5	Less than \$50 \$50 to \$500 \$500 to \$5,000 \$5,000 to \$50,000 \$50,000 to \$500,000 \$500,000 to \$5 Million	0/Blank * ** @ #	None reported. Miles instead of yards. Yards instead of miles. Includes heavy sleet storm. Freezing drizzle and freezing rain, commonly known as glaze.
8	\$5 Million to \$50 Million \$50 Million to \$500 Million \$500 Million to \$5 Billion	<i>‡</i> <i>‡‡</i> o/c	Report incomplete. Report not received. Indicates Crop Damage amount is included in the value given for property damage.

When reports are not received or are incomplete, the Storm Summary National Death and Injury totals may also be incomplete.

Definition of Fujita Tornado Scale (F scale)

(FO) Gale tornado (40-72 mph): Light damage Some damage to chimneys; break branches off trees; push over shallow-rooted trees; damage sign boards.

(F1) Moderate tornado (73-112 mph): Moderate damage The lower limit (73 mph) is the beginning of hurricane wind speed; peel surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off the roads.

(F2) Significant tornado (113-157 mph):
 Considerable damage
 Roofs torn off frame houses; mobile homes
 demolished; boxcars pushed over; large trees
 snapped or uprooted; light-object missiles
 generated.

(F3) Severe tornado (158-206 mph): Severe damage Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; heavy cars lifted off ground and thrown

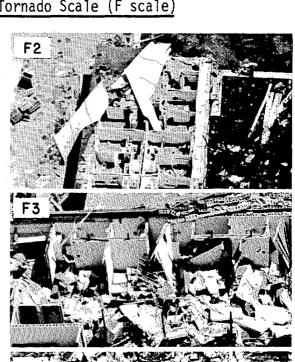
(F4) Devastating tornado (207-260 mph): Devastating damage Well-constructed houses leveled; structure with weak foundation blown off some distance; cars thrown and large missiles generated.

(F5) Incredible tornado (261-318 mph): Incredible damage Strong frame houses lifted off foundations and carried considerable distance to disintegrate; automobile-sized missiles fly through the air in excess of 100 m; trees debarked; incredible phenomena will occur.

(F6-F12) (319 mph to Mach 1, the speed of sound): The maximum wind speeds of tornadoes are not expected to reach the F6 wind speeds.

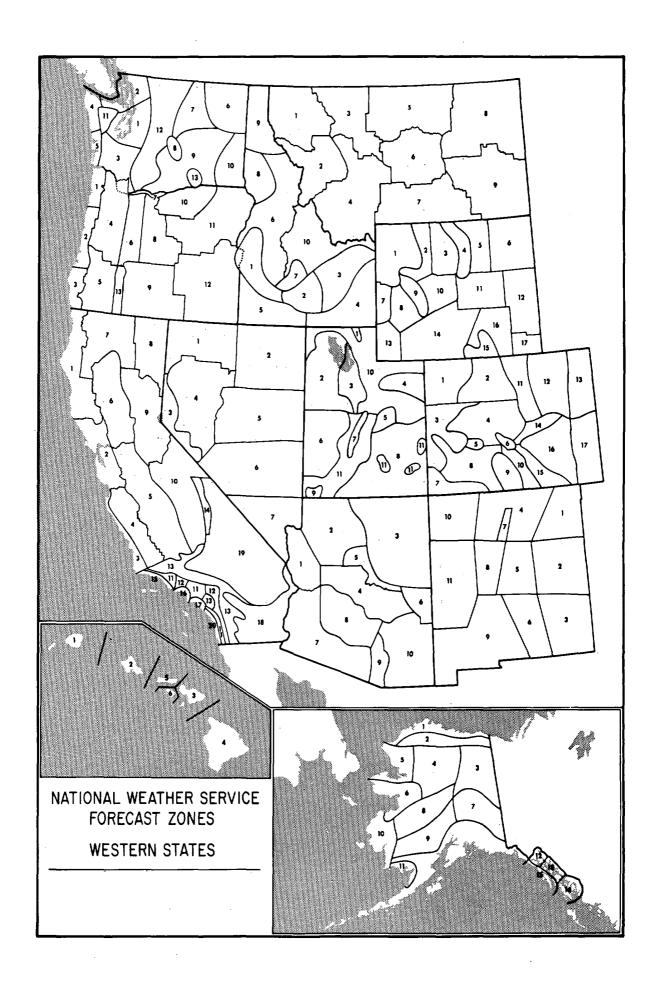
(F0+F1) Weak Tornado (F2+F3) Strong Tornado (F4+F5) Violent Tornado

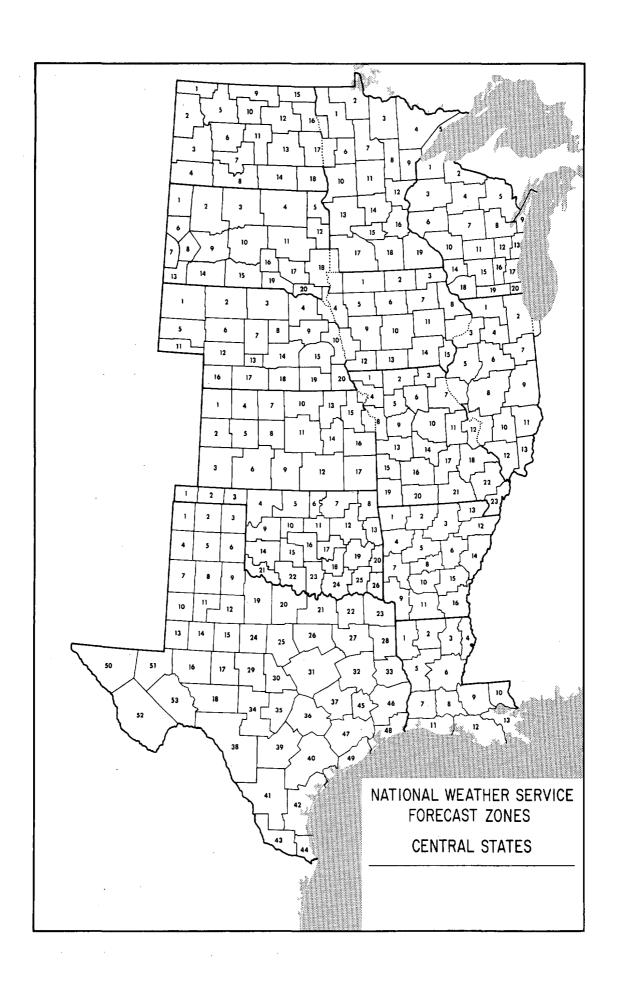
From J. Atmos. Sci., August 1981, p. 1517-1519

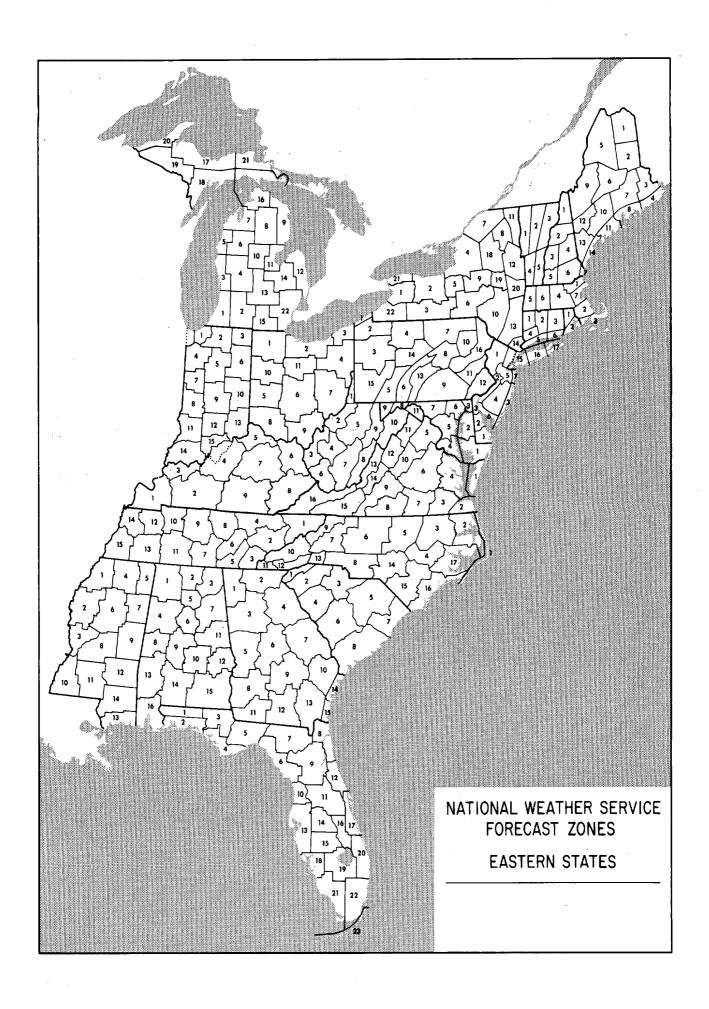














CALL FOR PAPERS!



Association of State Floodplain Managers 13th Annual Conference

Scottsdale, Arizona May 22-25, 1989

PARTNERSHIPS: Effective Flood Hazard Management

The Association of State Floodplain Managers (ASFPM) is a national organization. Its goal is the reduction of flood damages and hazards through sound floodplain management. Its members include representatives of local, state, and federal governments as well as those of the private and non-profit communities. The Association sponsors an annual conference on the state-of-the-art in flood damage and hazard reduction. Conference topics always span a broad spectrum of issues of interest to those involved in floodplain management.

Most effective efforts involve **Partnerships**. The formulation and functioning of these partnerships are important to understand in order to build good relationships for <u>better</u> projects with the <u>best</u> results. This year's conference theme focuses on the effectiveness of networking and partnerships to create and implement solutions, programs, and projects to reduce flooding hazards and damages.

The Assocation specifically encourages papers describing multi-objective **Partnerships** and approaches that have worked to reduce potential flood damages. The ASFPM also welcomes proposals for "short course" presentations at the conference. Papers are invited which address all aspects of floodplain management issues and problems including the following:

- Effectively integrating watershed-wide floodplain management concerns with local planning and zoning.
- Status of "temporary taking" and other legal issues: what's happening in the courts?
- Case histories of communities under sanction for non-compliance with the NFIP.
- A decade of Section 406 Hazard Mitigation Planning: have we made progress?
- Reducing flood loss potential: what works?
- Do federal programs adequately address state and local needs?
- Multi-objective projects: what makes them successful?
- Improving flood prevention and awareness programs aimed at local officials and private property owners.
- How can we improve technical assistance to small communities?
- What's new and improved in the field of floodproofing?

SUBMISSION OF ABSTRACTS

Three copies of abstracts for papers must be submitted by October 31, 1988 to Rebecca Q. Hughes, Conference Program Chair.

Abstracts should not exceed 200 words and must include the paper's title, and all authors' names, affiliations, addresses and phone numbers. Authors will receive timely notification of the status of papers. A copy of the complete paper must be submitted by June 15, 1989 for inclusion in the 1989 published proceedings. All attendees, including authors, will be expected to pay the registration fee for the conference.

ABOUT THE CONFERENCE

The technical conference will be held Tuesday, Wednesday, and Thursday and will include a field trip in the Phoenix-Scottsdale area. The conference will feature one track of concurrent sessions dealing specifically with the floodplain management problems of the Arid West. The ASFPM will conduct its committee and general membership meetings on Monday. All members and prospective members are invited to participate. A technical field trip including dinner is scheduled one evening. Optional field trips and spouse activities will be available.

REGISTRATION RATES

Registration prior to April 15, 1989 will be \$150 for members, \$165 for non-members, and \$65 for students and local government officials from the State of Arizona.

EXHIBIT SPACE

Exhibit space will be made available for a fee to individuals and organizations who wish to display a product or service to conference attendees. Information on exhibit space can be acquired from Susan Josheff, Exhibits Coordinator, at the address below.

ABOUT SCOTTSDALE

Scottsdale is noted throughout the country for its creative approach to city planning. Running the length of the City is the Indian Bend Wash Greenbelt, a 7.5 mile long flood control project that uses a system of parks, lakes, and golf courses as an alternative to a conventional concrete channel. This greenbelt offers endless recreational opportunities including fishing, sailing and other sports.

Scottsdale's quality lifestyle includes well-planned living, working and shopping areas, pleasant neighborhoods and residential areas protected from traffic and noise. The City's emphasis on mountain conservation and protection of its rich desert areas is reknown nationally. Scottsdale is also recognized for its architectural and landscape design excellence and rich cultural, business and recreational environments. The City is proud of its vital downtown areas. The ambiance of Scottsdale reflects a unique blend of traditional Western and modern living.

The conference will be held at the Wyndham Paradise Valley Resort in Scottsdale, Arizona. Conference room rates are \$53 single, and \$63 double. Paradise Valley Resort is an exceptional facility which showcases Scottsdale's best features.

CONFERENCE HOST: Arizona Department of Water Resources

CONFERENCE DIRECTOR

Jim Morris Arizona Department of Water Resources 15 S. 15th Avenue Phoenix, Arizona 85007 (602) 255-1566

PROGRAM CHAIR

Rebecca Q. Hughes Maryland DNR Water Resources Admin. Tawes State Office Bldg. D-3 Annapolis, Maryland 21401 (301) 974-3825

EXHIBITS COORDINATOR

Susan Josheff Wisconsin DNR P.O. Box 7921 (WZ/6) Madison, Wisconsin 53707 (608) 266-2151

Rebecca Q. Hughes 1989 ASFPM Conference Program Chair Maryland Water Resources Administration Tawes State Office Building, D-3 Annapolis, MD 21401



PARTNERSHIPS Effective Flood Hazard Management



CALL FOR PAPERS!



Association of State Floodplain Managers 13th Annual Conference

> Scottsdale, Arizona May 22-25, 1989

DEPARTMENT OF COMMERCE
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NATIONAL ENVIRONMENTAL SATELLITE, DATA, AND INFORMATION SERVICE
NATIONAL CLIMATIC DATA CENTER
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